

# AMERICAN VETERINARY REVIEW

EDITED BY

**PROF. A. LIAUTARD, M.D., V.M.**

*Member Central Society of Veterinary Medicine (Paris). Honorary Fellow Royal College Veterinary Surgeons (England). Foreign Corresponding Member Academy of Medicine, Bruxelles (Belgique),*

AND

**Prof. ROBERT W. ELLIS, D.V.S.**

WITH THE COLLABORATION OF

- |  |   |
|--|---|
| Prof. W. J. COATES, M.D., D.V.S., New York-American Veterinary College.  | J. F. DE VINE, D.V.S., Dept. Agr. Goshen, N. Y.   |
| OLAF SCHWARZKOPF, Veterinarian, Cavalry, Instructor Mounted Service School, Ft. Riley, Kan.                              | D. ARTHUR HUGHES, Ph.D., D.V.M., Insp. Comm. Dept., U. S. Army, Chicago, Ill.               |
| Prof. W. REID BLAIR, D.V.S., New York-American Veterinary College.   | JOHN R. MOHLER, V.M.D., Chief of Pathological Division B. A. I., Washington, D. C.          |
| Prof. S. STEWART, Kansas City Veterinary College, Kansas City, Mo.   | Prof. L. A. MERILLAT, V.S., Chair of Surgery, McKillip Veterinary College, Chicago, Ill.    |
| Prof. M. H. MCKILLIP, M.D., V.S., McKillip Veterinary College, Chicago, Ill.   | D. E. SALMON, D.V.M., Ex-Director of the Veterinary School, Montevideo, Uruguay.            |
| B. F. KACFP, M.S., D.V.S., Commissioner of Public Health, Spartanburg, S. C.   | Prof. VERANUS A. MOORE, Director, New York State Veterinary College, Ithaca, N. Y.          |
| Prof. M. H. REYNOLDS, University of Minnesota, St. Anthony Park, Minn.   | RICHARD P. LYMAN, Dean Vet. Div. Mich. Agr. College, East Lansing, Mich.                    |
| WM. H. DALRYMPLE, M.R.C.V.S., Veterinarian Louisiana Ag. Exp. Sta., Baton Rouge, La.                                     | C. J. MARSHALL, V.M.D., President A. V. M. A., Philadelphia, Pa.                            |
| JOHN P. O'LEARY, V.M.D., Veterinary Inspector in Charge, B. A. I., Troy, N. Y.   | A. D. MELVIN, M.D.C., Chief of B. A. I., Washington, D. C.                                  |
| A. T. KINSLEY, M.Sc., D.V.S., Path. Kansas City Veterinary College, Kansas City, Mo.                                     | GEO. H. GLOVER, M.S., D.V.M., Director Div. Vet. Sci., Colo. Agr. Coll., Ft. Collins, Colo. |
| Prof. S. SISSON, S.B., V.S., Prof. Comp. Anat., Ohio State University, author of Sisson's Vet. Anat., etc., Columbus, O. | J. DESMOND, Ex-Chief Gov't Vet. Surg., Adelaide, So. Australia.                             |
| J. G. RUTHERFORD, V.S., H.A.R.C.V.S., Ex-Veterinary Director-General and Live Stock Commissioner, Ottawa, Canada.        | NELSON S. MAYO, M.S., D.V.S., Secretary A.V. M. A., 4733 Ravenswood Avenue, Chicago, Ill.   |

And several others.

**VOLUME XLV.**

NEW YORK:  
PUBLISHED BY AMERICAN VETERINARY REVIEW,  
509 WEST 152d STREET.

6529



## LIST OF ILLUSTRATIONS IN VOLUME XLV.

	PAGE
Another Monstrosity .....	92
Prolapsus or Eversion of the Rectum in a Colt.....	231, 232
Cyclopia or Synophthalmia.....	237
Six Experimental Cases of Tetanus in Carnivora—	
Cat No. 1.....	335, 336
Cat No. 1, apparently dead, shows extreme muscular contraction....	337
Dog No. 1, taken when Tetanus was general.....	338
Dog No. 2.....	339
Three Useful Knots and How to Use Them—	
Figs. 1 and 2.....	448
Figs. 3 and 4.....	449
Figs. 5 and 6.....	450
Figs. 7 and 8.....	451
Ventral Hernia .....	468
Epithelioma .....	469
“The Natural Bridge, the most sublime of Nature’s works”.....	507
Skyland Elevation 4,000 Feet—Near Luray, Va.....	508
Caverns of Luray, Luray, Va.....	509
Bow Line on a Bight, 1, 2, 3, 4.....	565
Bow Line, 1, 2.....	566
On Board S. S. Finland.....	577
Rachianesthesia .....	610
The New Quarters of the Ontario Veterinary College.....	623
Antemortem Inspection of Cattle.....	630
Postmortem Inspection of Cattle.....	631
An inspector watching the preparation of beef tongues for packing....	632
Insanitary conditions in an uninspected slaughter house.....	633
The inspection of neck glands of hogs. If tuberculosis is present it is usually found here.....	634
Inspection of the viscera of hogs.....	635
Dressing and inspecting carcasses of hogs and putting on the marks of inspection .....	636
Hysterocele .....	665
Cow Moose in Labor—Refuses Assistance—Dies.....	668
Twin Foals—Horse and Mule.....	669
Front view of mansion, “Oud Bussem,” showing a workman’s dwelling to the right and the meeting house to the left.....	684



## TABLE OF CONTENTS, VOLUME XLV.

	PAGE		PAGE
Abdominal Case, Interesting....	95	Army Veterinary Service Bill,	
Abdominal Neoplasm .....	350	the Best of Fortune for,	
Abortion, Contagious, Treatment		Crowd Behind It and Finish	
of, with "Bissulin" .....	352	the Work in the Senate.....	552
About Malleine .....	136	Arrival in Paris and London....	678
Abscess, Hepatic, by Foreign		Arsenical Treatment of Surra in	
Body .....	575	Horses .....	472
Abscess of Myocardium Follows		Atloid Hygroma in Dog.....	99
Foot and Mouth Disease in a		Auricular Catarrh in Dogs.....	266
Bull .....	574	A. V. M. A. at New Orleans....	158
Absence of Left Kidney in Dog,		A. V. M. A. Meeting at New Or-	
Case Report .....	348	leans, Pleasurable Anticipations	
Abstracts from Exchanges....	94, 239,	in Connection with.....	505
	349, 471, 509, 671		
Accident to a Horse, Unique...	350	<b>Bacillemia amongst Tuberculous</b>	
A Complicated Case.....	473	Subjects .....	498
Actual Practice, Dystokia and a		B. A. I. Employees, New York	
Few Cases Met in, Case Re-		City the Logical Place for the	
port .....	86	Third Annual Meeting of the	
Advantage of a Sanitary Milk		National Association of.....	511
House on the Farm .....	645	Barium Chloride as an Evacu-	
Ægagropile in Small Colon Kills		ant in the Horse.....	79
a Horse .....	675	Basedow's Disease in a Dog....	100
A Little of the Warmth of Hu-		Belgian Review .....	100
mor for Our Campaign.....	110	Best of Fortune for the Army	
A Modern Veterinary Building..	622	Veterinary Service Bill, Crowd	
Amputation of the Uterus in		Behind It and Finish the	
Cows .....	475	Work in the Senate.....	552
Anaphylaxy, a New.....	142	<b>BIBLIOGRAPHY—</b>	
Animal Diseases, Money Given		Poultry Diseases and Their	
for Study of.....	154	Treatment .....	487
Animals, Humane Treatment of.	625	Productive Horse Husbandry.	112
Animals, Some Common Dis-		The Common Colics of the	
eases of and Their Treatment.	196	Horse .....	485
Another Monstrosity, Case Re-		Veterinary Hygiene .....	245
port .....	91	Year Book .....	486
Anthrax Bacterium, Viability of		Bilateral Luxation of the Lens	
the .....	76	in a Dog.....	569
Anti-Narcotic Law, Federal....	388	Biorization of Milk.....	558
Another Observation of Larvar		Blood Counting, Some Results	
Cylicostoma .....	675	of on Cattle.....	527
Antiseptics Versus Germicides..	223	Blood, Spontaneous Sedimenta-	
Antituberculous Immunity .....	611	tion of the .....	7
Application of the Roentgen		Bon Voyage .....	275
Rays .....	5	Botryomycosis in a Cob.....	571
Army Veterinarians, Death of		Botryomycosis of the Upper Lip.	99
One of the Aged—Apprecia-		Bovine, Indolent Placentae.....	562
tive Tribute to His Life.....	108	Bovine Piroplasmosis, Trypan-	
Army Veterinary Department.	108,	blue in .....	677
	249, 687	Bovine Tuberculosis .....	537

PAGE	PAGE
Bow Line on a Bight—the Bow Line ..... 562	Commissioned Veterinary Corps for the Army ..... 687
British Veterinary Officer of the Highest Rank Tells Experience of British Army Veterinary Department ..... 249	Comparative Pathology and Therapeutics, Journal of..... 501
Broncho-Pneumonia, a Case of Contagious, Caused by Bacillus Coli Communis, Case Report.. 233	Complement-Fixation, Diagnosis of Dourine by..... 44
Calving Case, Peculiar ..... 671	Complete Removal of the Pregnant Uterus and Ovaries in a Bitch ..... 474
Campaign of Lobeck Bill Continued from Wisconsin—Congress Engrossed in Anti-Trust Legislation ..... 510	Complicated Case ..... 473
Cancer in a Chicken, Case Report ..... 238	Compound Comminuted Fracture of the 7th and 9th Ribs..... 471
Canine Leishmaniosis ..... 385	Congenital Opacity of the Cornea ..... 239
Canine Medicine ..... 618	Congress in London, The..... 626
Canine Piroplasmosis ..... 98	Congress, Official Steamer to the Constriction and Occlusion, Intestinal, with Distemper Origin 97
Canine Practice, X-Rays in..... 673	Constriction, Unusual Case of, Case Report ..... 667
Cartilages, Necrosis of the Nasal ..... 573	Contagious Pustular Dermatitis... 140
Case, a Puzzling..... 95	Control of Bovine Tuberculosis in a Dairy State—Some Statistical Facts ..... 147
Case of Bovine Tuberculosis in Man ..... 476	Control of Glanders..... 581
Case of Contagious Broncho-Pneumonia Caused by Bacillus Coli Communis, Case Report.. 233	Coprostasis, Rectal and Intestinal in Dogs ..... 352
Case of John's Disease Successfully Treated ..... 473	Correspondence .102, 247, 356, 478, 577, 678
Case of Psammonia..... 94	Cow Moose in Labor—Refuses Assistance—Dies, Case Report 667
Cases of Malarian Urticaria in Horses ..... 576	Cows, Sterility in..... 268
Cases, Reports of .84, 230, 333, 456, 664	Cryptorchid, Flank Incision for Operation of ..... 571
Catarrh, Auricular, in Dogs..... 266	Cyclopia or Synophthalmia, Case Report ..... 237
Cattle, Potato Poisoning in..... 94	Cylicostomosis, Larvar ..... 383
Cecum, Impaction of the, Case Report ..... 84	Cystic Calculus in a Bitch, Enormous, Case Report..... 93
Cesarian Operation in the Canine ..... 660	Cystotomy, Interesting ..... 572
Cholera, Hog—Distribution and Use of Serum and Virus..... 69	Cyst, Ovarian, in a Mare, Spontaneously Discharged; Recovery Follows ..... 349
Chondroma of the Fingers..... 242	
Chronic Bone and Articular Lameness, Passive Treatment of ..... 65	Death of a Foal—Toxicity of Morphia—Case Report ..... 465
Chronic Pyometry ..... 242	Death of One of the Aged Army Veterinarians — Appreciative Tribute to His Life..... 108
Clinical Cases ..... 471	Dermatitis, Contagious Pustular... 140
Clinical Cases. Some..... 351	Diagnosis, New Methods of..... 379
Clinical Post-Pharyngeal Surgery 570	Diagnosis of Dourine by Complement-Fixation ..... 44
Cob, Botryomycosis in a..... 571	Diaphragmatic Flexure of Large Colon, Obstruction of, Case Report ..... 89
Colics, Pantopon in..... 575	
Commencement Exercises of New York University, Eighty-second ..... 389	

	PAGE
Differentiating Tubercle Bacilli from the more Common Acid-Fast Forms .....	240
Digestion, Some Mechanical Factors in .....	408, 513
Discussion of Professor Kinsley's Paper .....	318
Diseases, Parasitic, of the Dog and of the Cat, Parasites and..	616
Dislocation, an Unusual.....	96
Distemper Abscess, Mischief of.	354
Dog and Cat, Porrigo by Microsporum in .....	101
Dog, Atloid Hygroma in.....	99
Dog, Basedow's Disease in a....	100
Dog, Intestinal Obstruction in...	355
Dog, Polioencephalitis Simulating Rabies in .....	676
Dog's Stomach, Foreign Bodies in .....	97
Dog Swallows Twenty-two Tacks—Recovers, Case Report	235
Dry and Ascending Necrosis of the Septum Nasi and Turbinate Bones in a Horse.....	244
Dystokia and a Few Cases Met in Actual Practice, Case Report .....	86
<b>EDITORIAL—</b>	
A Modern Veterinary Building	622
A. V. M. A. at New Orleans.	158
Bon Voyage .....	275
Campaign of Lobeck Bill Continued from Wisconsin—Congress Engrossed in Anti-Trust Legislation .....	510
Control of Bovine Tuberculosis in a Dairy State—Some Statistical Facts .....	147
Eighty-second Commencement Exercises of New York University .....	389
European Tour and the Tenth International Veterinary Congress .....	156
Federal Anti-Narcotic Law...	388
Hearings Begin on the Lobeck Bill .....	146
Hearings on the Lobeck Bill..	276
Hopeful Outlook for Veterinary Legislation .....	391
House Committee on Military Affairs in Congress Again Compliments the Veterinary Profession .....	15
Humane Treatment of Animals	625

	PAGE
<b>EDITORIAL—</b>	
Money Given for Study of Animal Diseases .....	154
New York City the Logical Place for the Third Annual Meeting of the National Association of B. A. I. Employees .....	511
Official Steamer to the Congress .....	276
On Board the Finland.....	390
Pleasurable Anticipation in Connection with A. V. M. A. Meeting at New Orleans...	505
Swift, Strong Rush to Final Victory .....	504
The Congress in London.....	626
The Glanders Question.....	271
The Mule "Infernal but Eternal" .....	159
The One Thing Lacking.....	619
The United States Government Saves Money by Increasing the Efficiency of Its Veterinary Service .....	144
Volume Forty-five .....	18
What <i>The Army and Navy Journal</i> Does for the Military Veterinarians and What We Hold It Should Do....	12
Embolism and Thrombosis in a Foal .....	671
English Review..94, 239, 349, 471, 569, 671	
Enormous Cystic Calculus in a Bitch, Case Report .....	93
Epithelioma, Case Report.....	469
Ether, Surgical Applications of, Besides Anesthesia .....	499
<b>EUROPEAN CHRONICLES—</b>	
About Malleine .....	138
A New Anaphylaxy.....	142
Antituberculous Immunity ....	611
Applications of the Roentgen Rays .....	5
Auricular Catarrh in Dogs....	266
Bacillema amongst Tuberculous Subjects .....	408
Canine Leishmaniosis .....	385
Contagious Pustular Dermatitis.	140
Infection by Koch Bacillus Is an Immunizing Disease ....	493
Infectious Paraplegia .....	263
Journal of Comparative Pathology and Therapeutics...	501
Larvar Cyclostomosis .....	383

	PAGE		PAGE
<b>EUROPEAN CHRONICLES—</b>		<b>Foal, Death of a—Toxicity of</b>	
Medicine Canine .....	618	Morphia—Case Report.....	465
Myoclonus .....	133	Foal, Embolism and Thrombosis	
Nervous Lesions in Intoxica-		in a .....	671
tion by Worms.....	269	Foals, Twin—Horse and Mule,	
New Methods of Diagnosis...	381	Case Report .....	669
On Glanders .....	378	Foetuses, Twin .....	96
On Rabies Again .....	136	Food, Tissue .....	293
Parasites and Parasitic Dis-		Foreign Bodies in Dog's Stom-	
eases of the Dog and of the		ach .....	97
Cat .....	616	Foreign Body in the Pharynx..	474
Prof. Eberlein's Surgical		Foot and Mouth Disease in a	
Treatment of Roaring.....	10	Bull, Abscess of Myocardium	
Rachianesthesia .....	608	Follows .....	574
Sterility in Cows.....	268	Fracture, Compound Commi-	
Strong and Weak Organisms		nated Fracture of the 7th and	
with Virulent Microbes.....	496	9th Ribs .....	471
Spontaneous Sedimentation of		Fracture of Incisive Teeth in	
the Blood .....	7	Horses .....	240
Subcutaneous Tuberculosis ...	261	Fracture, Recovery of Several	
Surgical Applications of Ether		Cases of .....	572
Besides Anesthesia .....	499	French Review...97, 241, 352, 474, 572,	
Tenth International Veterinary		674	
Congress, London ....1, 377,	607	Fundamentals of Good Sanitary	
Water in Veterinary Practice..	614	Control Work .....	214
European Tour and the Tenth		<b>Gangrene, Septic, in Cows.....</b>	<b>243</b>
International Veterinary Con-		Gelding, Sunstroke in American	
gress .....	156	Thoroughbred .....	560
Evacuant in the Horse, Barium		Gelding, Sabulous Deposit in a..	672
Chloride as an .....	79	Generalized Alopecia in a Horse	676
Examinations, State Board, Test		Generalized Porocephalosis in a	
Applicants' Fitness to Practice	654	Cynocephalus .....	243
Examinations, State Veterinary		Germicides, Antiseptics versus..	223
Board .....	330	Glanders .....	378
Exchanges, Abstracts from....94, 239		Glanders, Control of.....	581
349, 471, 569, 671		Glandular Lymphosarcoma and	
Expert Examination of Stallions		Aortic Ossification in a Horse	674
under State Laws.....	253	Glanders Question, The.....	271
Extra-Uterine Gestation in a		Goats, Pleuro-Pneumonia of, in	
Sow .....	355	India .....	472
<b>Faradization in Veterinary Ther-</b>		Goats, Tuberculosis in.....	98
<b>apeutics .....</b>	<b>476</b>	<b>Health and Disease, the Intercel-</b>	
Fatty Degeneration of the Kid-		lular Fluid and Its Relation to.	423
neys in Cat.....	352	Heart Disease and Aorta Rupture	
Federal Anti-Narcotic Law.....	388	in Brood Mare.....	672
Federal Meat Inspection and the		Health and Disease, Water in..	73
Desirability of Supplemental		Hearings Begin on the Lobeck	
State and City Inspection.....	628	Bill .....	146
Fifth Season's Report upon the		Hearings on the Lobeck Bill....	276
Permanent Value of the Ven-		Hepatic Abscess by Foreign	
tricle Stripping Operation for		Body .....	575
"Roaring," Case Report.....	456	Hermaphroditism, True .....	240
Fingers, Chondroma of the.....	242	Hernia, Strangulated Diaphrag-	
Finland, on Board the.....	390	matic .....	573
Flank Incision for Operation of		Hernia, Ventral, Case Report... 467	
Cryptorchid .....	571		



PAGE	PAGE
Hog Cholera and the Production and Use of Hog Cholera Serum ..... 178	John's Disease, a Case of Successfully Treated ..... 473
Hog Cholera—Distribution and Use of Serum and Virus..... 69	Journal of Comparative Pathology and Therapeutics..... 501
Hook Worm Disease in a Mule, Case Report ..... 347	Kidney, Absence of Left, in Dog 348
Hopeful Outlook for Veterinary Legislation ..... 391	Kidneys, Fatty Degeneration of the in Cat..... 352
Horse, Ægagropile in Small Colon Kills a..... 675	Knots, Three Useful, and How to Use Them..... 448
Horse, Glandular Lymphosarcoma and Aortic Ossification in a Horse ..... 674	Koch Bacillus, Infection by Is an Immunizing Disease..... 493
Horse Husbandry, Productive.. 112	Lacking, the One Thing..... 619
Horse, Mitral Disease in the.. 241, 351	Large Intestines, Impaction of the, Case Report ..... 347
Horse, Subcutaneous Sarcoma in a ..... 673	Large Ovarian Myxo-Sarcoma in a Slut ..... 100
Horses, Asses and Mules, Rules and Regulations for the Importation of into Rhode Island 128	Larvar Cylicostomosis ..... 383
Horses, Market ..... 30	Leishmaniosis, Canine ..... 385
House Committee on Military Affairs Again Compliments the Veterinary Profession ..... 15	Larvar Cylicostoma, Another Observation of ..... 675
Horse, Rupture of Stomach in the, Case Report..... 668	Lens, Bilateral Luxation of the in a Dog..... 569
Huidekoper, Rush Shippen..... 126	Leucocytic Extract, Preliminary Report on the Value of from a Therapeutic Standpoint..... 56
Humane Treatment of Animals.. 625	Live Stock Industry, Maine.... 323
Humor, a Little of the Warmth of for Our Campaign..... 110	Live Stock Sanitary Control Work, Fundamentals of Good. 214
Hysterocele, Case Report..... 664	Live Stock, Summer Hints for.. 453
Immunity, Antituberculous .... 611	Lobeck Bill, Campaign of, Continued from Wisconsin—Congress Engrossed in Anti-Trust Legislation ..... 510
Impaction of the Cecum, Case Report ..... 84	Lobeck Bill, Hearings Begin on the ..... 146
Impaction of the Large Intestines, Case Report..... 347	Lobeck Bill, Hearings on the... 276
Impaction of the Oesophagus... 349	London, the Congress in..... 626
Indolent Bovine Placentae..... 562	Maine Live Stock Industry..... 323
Infection by Koch Bacillus Is an Immunizing Disease ..... 493	Malleine, About ..... 138
Infection, Purulent, from Strangles in a Horse..... 574	Mange, Sarcoptic, of Dog to Man ..... 239
Infectious Paraplegia ..... 263	Mare, Brood, Heart Disease and Aorta Rupture in..... 672
Intercellular Fluid and Its Relation to Health and Disease.... 423	Mare, Nymphomania in—Oophorectomy Followed by Recovery—Return of Condition after Year's Time, Case Report..... 345
Interesting Abdominal Case.... 95	Mare, Renal Calculus in a..... 674
Interesting Case of Osteitis Sequelae of Distemper..... 241	Market Horses ..... 30
Interesting Cystotomy ..... 572	Meat Inspection, Federal, and the Desirability of Supplemental State and City Inspection..... 628
Interesting Post Mortems, Case Report ..... 567	Medicine, Canine ..... 618
Intestinal Constriction and Occlusion with Distemper Origin. 97	Melanotic Tumor of the Shoulder ..... 353
Intestinal Obstruction in Dog.. 355	
Intoxication by Tobacco Juice.. 354	
Italian Review ..... 575	

	PAGE		PAGE
Metastatic Strangles in an Aged Horse, Followed by Symptoms Simulating Purpura, Ending with Poll Evil, Treated with Autogenous Vaccines and Sero-Vaccine, Recovery.....	570	Nymphomania in Mare—Oophorectomy Followed by Recovery—Return of Condition After Year's Time, Case Report .....	345
Methylene Blue in the Treatment of Wounds .....	97	<b>OBITUARY—</b>	
Military Veterinarians, What <i>The Army and Navy Journal</i> Does for the, and What We Hold It Should Do.....	12	A. J. Ransom.....	125
Milk, Biorization of.....	558	Charles Jamieson, D.V.S....	362
Milk House, Sanitary, Advantage of a on the Farm.....	645	D. W. Patton, M.D., D.V.M....	583
Mischiefs of Distemper Abscess.	354	Edward I. Carter, D.V.S....	125
Mitral Disease in the Horse..	241, 351	Egbert Le Fevre, B.A., M.D..	362
Money Given for Study of Animal Diseases .....	154	John Buford Archer, V.S....	583
Monstrosity, Another, Case Report .....	91	Thomas B. Hillock, V.S....	125
Mule, Hook Worm Disease in a, Case Report.....	347	W. B. Lewin.....	125
Moose, Cow, in Labor—Refuses Assistance—Dies, Case Report	667	Obstruction of Diaphragmatic Flexure of Large Colon, Case Report .....	89
Mule, "Infernal but Eternal," the	159	Oesophagus, Impaction of the..	349
Myoclonus .....	133	Official Steamer to the Congress .....	276
Myxo-Sarcoma, Large Ovarian, in a Slut.....	100	Official Tour, Tidings from First Party of.....	577
		Official Tour, Tidings from Second Party of.....	604
Necrosis, Dry and Ascending, of the Septum Nasi and Turbinate Bones in a Horse.....	244	On Board the Finland.....	390
Necrosis of the Nasal Cartilages	573	On Glanders .....	378
Necrosis of the Turbinate Bones .....	573	On Rabies Again.....	136
Neoplasm, Abdominal .....	350	Opacity, Congenital, of the Cornea .....	239
Nervous Lesions in Intoxication by Worms.....	269	Operation, the Cæsarian, in the Canine .....	660
New Anaphylaxy, A.....	142	Organisms, Strong and Weak, with Virulent Microbes.....	495
New Methods of Diagnosis.....	381	Osteitis Sequelae of Distemper, Interesting Case of.....	241
New Orleans, the A. V. M. A. at .....	158	Osteoporosis in Horses.....	441
News and Items.126, 257, 372, 489, 600, 714		Ovarian Cyst in a Mare, Spontaneously Discharged; Recovery Follows .....	349
New York City the Logical Place for the Third Annual Meeting of the National Association of the B. A. I. Employees .....	511	<b>Pantopon in Colics.....</b>	<b>575</b>
New York University, Eighty-second Commencement Exercises of .....	389	Paraplegia, Infectious .....	263
Notes on Cases of Spavins Relieved by Cunean Tenotomy..	474	Paralysis, Radial, Sequel to Casting .....	671
		Parasites and Parasitic Diseases of the Dog and of the Cat....	616
		Paris and London, Arrival in....	678
		Passive Treatment of Chronic Bone and Articular Lameness .....	65
		Patella, Traumatic Luxation of the, Case Report.....	90
		Peculiar Calving Case .....	671
		Perforation, Wide Pharyngeal, by Abscess of Strangles.....	677



	PAGE		PAGE
Pharynx, Foreign Body in the..	474	Radial Paralysis, Sequel to Cast- ing .....	671
Piroplasmosis, Canine .....	98	Recent Investigations of the Eti- ology of Contagious Pneumo- nia of Horses and the Salvar- san Treatment of This Dis- ease .....	252
Pleasurable Anticipations in Connection with A. V. M. A. Meeting at New Orleans.....	505	Recovery of Several Cases of Fracture .....	572
Pleuritis, Tuberculous, in a Cow	576	Rectal and Intestinal Coprosta- sis in Dogs .....	352
Pleuro-Pneumonia of Goats in India .....	472	Rectum, Prolapsus or Eversion of the, in a Colt, Case Report.	230
Pneumonia, Recent Investigation of the Etiology of Contagious of Horses, and the Salvarsan Treatment of This Disease...	252	Regulations Relating to Tuber- culosis .....	579
Poisoning with Sulphur.....	99	Relation of Vaccine Therapy to Veterinary Practice .....	19, 161
Polioencephalitis Simulating Rab- ies in Dog.....	676	Removal, Complete, of the Preg- nant Uterus and Ovaries in a Bitch .....	474
Porocephalosis, Generalized in a Cynocephalus .....	243	Renal Calculus in a Mare.....	674
Porrigo by Microsporum in Dog and Cat .....	101	Renal Conditions in Calves, Un- common .....	95
Potato Poisoning in Cattle.....	94	Reports of Cases.84, 230, 333, 456,	567, 664
Preliminary Report on the Value of Leucocytic Extract from a Therapeutic Standpoint .....	56	Res Judicatae—Veterinary Edu- cation .....	205
Probang, the Stomach Tube a Useful .....	82	Review, Belgian .....	100
Production of Artificial Immuni- ty against Tuberculosis in Domestic Animals .....	278, 392	Review, English..94, 239, 349, 471,	569, 671
Productive Horse Husbandry...	112	Review, French..97, 241, 352, 474,	572, 674
Prof. Eberlein's Surgical Treat- ment of Roaring .....	10	Review, Italian .....	575
Professor Kinsley's Paper, Dis- cussion of .....	318	Rheumatic Tendonitis .....	673
Prolapsus of the Uterus in Sow.	475	"Roaring," Fifth Season's Re- port upon the Permanent Value of the Ventricle Strip- ping Operation for, Case Re- port .....	456
Prolapsus or Eversion of the Rectum in a Colt, Case Re- port .....	230	Roaring, Prof. Eberlein's Surgi- cal Treatment of.....	10
Psammonia, Case of.....	94	Roentgen Rays, Application of the .....	5
Publishers' Department.....	132, 260, 376, 492, 606, 720	Rules and Regulations for the Importation of Horses, Asses and Mules into Rhode Island.	128
Pure-Bred Beef and Dairy Cat- tle, Some Observations on the Importation of .....	479	Rupture of Stomach in the Horse, Case Report.....	668
Pure-Bred Stallions .....	455	Ruptured Uterus in a Sow.....	350
Purulent Infection from Stran- gles in a Horse.....	574	Rush Shippen Huidekoper.....	126
Puzzling Case .....	95	Sabulous Deposit in a Gelding..	672
Pyometry, Chronic .....	242	Sarcoptic Mange of Dog to Man	239
Pyo-Septicemia of Sucklings....	546	Scissors and Tissue Separation vs. the Knife.....	227
Quadruplets, Case Report.....	670	Second Attack of Tetanus.....	239
Rabies Again, On.....	136	Septic Gangrene in Cows.....	243
Rachianesthesia .....	608		

	PAGE		PAGE
Serum, Hog Cholera and the Production and Use of Hog Cholera .....	178	SOCIETY MEETINGS—	
Serum Therapy, Case Report...	470	Veterinary Medical Associa- tion of New York City.....	598
Six Experimental Cases of Tetanus in Carnivora, Case Report .....	333	Washington State Veterinary Medical Association .....	595
SOCIETY MEETINGS—		Western New York Veterinary Medical Association .....	369
Alabama Veterinary Medical Association .....	115, 120	York County Veterinary Med- ical Association .....	124
Arkansas Veterinary Associa- tion .....	124	Some Clinical Cases.....	351
SOCIETY MEETINGS—		Some Common Diseases of Ani- mals and Their Treatment....	196
B. A. I. Veterinary Inspec- tors Association of Chicago, Ill. ....	123, 256	Some Mechanical Factors in Di- gestion .....	408, 513
Central New York Veterinary Medical Association .....	589	Some Observations on the Im- portation of Pure-Bred Beef and Dairy Cattle.....	478
Colorado Veterinary Medical Association .....	585	Some Results of Blood Counting on Cattle .....	527
Connecticut Veterinary Medi- cal Association .....	255	Some Verminous Parasites of Solipeds .....	308
Illinois Veterinary Medical Association .....	370	Sow, Extra-Uterine Gestation in Spavins, Notes on Cases of Re- lieved by Cunean Tenotomy...	474
Maine Veterinary Medical As- sociation .....	367, 597	Spontaneous Sedimentation of the Blood .....	7
Massachusetts Veterinary As- sociation .....	594	Stallions, Expert Examinations of under State Laws.....	253
Mississippi State Veterinary Medical Association .....	363	Stallions, Pure-Bred .....	455
Missouri Veterinary Medical Association .....	712	State Board Examinations, Test Applicants' Fitness to Practice	654
Montana Veterinary Medical Association .....	122	State Veterinary Board Exami- nations .....	330
New York State Veterinary Medical Society .....	707	Steer, Urethral Calculus in a....	672
Pennsylvania State Veterinary Medical Association .....	122	Sterility in Cows.....	268
Resolutions Adopted by the Veterinary Medical Associa- tion of New York City, May 6, 1914 .....	370	Stomach Tube a Useful Probang	82
Resolutions Passed at a Special Session of the Executive Committee of the U. S. Live Stock Sanitary Association at Chicago, May 6, 1914....	365	Strangulated Diaphragmatic Hernia .....	573
Schuylkill Valley Veterinary Medical Association .....	592	Strong and Weak Organisms with Virulent Microbes.....	496
Tenth International Veterinary Congress, London .....	694	Subcutaneous Sarcoma in a Horse	673
Twin City Veterinary Associa- tion, Minneapolis and St. Paul .....	369	Subcutaneous Tuberculosis .....	261
Veterinary Association of Manitoba .....	121	Sucklings, Pyo-Septicemia of...	546
		Sudden Death and Thoracic Ex- udations in Cat.....	353
		Sulphur, Poisoning with.....	99
		Summer Hints for Live Stock..	453
		Sunstroke in American Thor- oughbred Gelding .....	569
		Surgery, Clinical Post-Pharyn- geal .....	570
		Surgical Applications of Ether Besides Anesthesia .....	499
		Surra Arsenical Treatment of, in Horses .....	472
		Swift, Strong Rush to Final Vic- tory .....	504

	PAGE		PAGE
Synophthalmia, Cyclopia or, Case Report .....	237	Tuberculosis, Subcutaneous .....	261
Tacks, Dog Swallows Twenty-two—Recovery, Case Report...	235	Tuberculous Pleuritis in a Cow.	576
Take Notice, Veterinarians.....	488	Tuberculous Subjects, Bacillemia Amongst .....	498
Teeth, Incisive, Fracture of, in Horses .....	240	Tumor, Melanotic, of the Shoulder .....	353
Tendonitis, Rheumatic.....	673	Turbinated Bones, Necrosis of the .....	573
Tenth International Veterinary Congress, European Tour and.	156	Twin Foals—Horse and Mule, Case Report .....	669
Tenth International Veterinary Congress, London .....	1, 377	Twin Foetuses .....	96
Tetanus, a Second Attack of...	239	Twins? Case Report.....	669
Tetanus, Case Report.....	236	Uncommon Renal Condition in Calves .....	95
Tetanus, Six Experimental Cases of in Carnivora, Case Report.	333	Unique Accident to a Horse....	350
The Glanders Question.....	271	Unusual Case of Constriction, Case Report.....	667
The Mule "Infernal but Eternal" .....	159	Unusual Dislocation .....	96
The One Thing Lacking.....	619	Urethral Calculus in a Steer....	672
Therapy, Serum, Case Report..	470	Upper Lip, Botryomycosis of the	99
The United States Government Saves Money by Increasing the Efficiency of Its Veterinary Service .....	144	Uterus, Amputation of the in Cows .....	475
Thoracic Exudations, Sudden Death and, in Cat.....	353	Uterus in a Sow, Ruptured.....	350
Three Useful Knots and How to Use Them .....	448	Uterus, Prolapsus of the, in Sow	475
Tidings from First Party of Official Tour .....	577	Vaccine Therapy, Relation of to Veterinary Practice .....	19, 161
Tidings from Second Party of Official Tour .....	604	Ventral Hernia, Case Report...	467
Tissue Food .....	293	Veterinarians, Take Notice.....	488
Tissue Separation, Scissors and, vs. the Knife .....	227	Veterinary Building, a Modern..	622
Tobacco Juice, Intoxication by..	354	Veterinary Congress, Tenth International, London .....	1, 377
Traumatic Luxation of the Patella, Case Report.....	90	Veterinary Corps, Commissioned, for the Army.....	687
Treatment of Contagious Abortion with "Bissulin".....	352	Veterinary Department, British Army, British Veterinary Officer of Highest Rank Tells Experience of .....	249
True Hermaphroditism .....	240	Veterinary Education .....	205
Trypanblue in Bovine Piroplasmiasis .....	677	Veterinary Legislation, Hopeful Outlook for .....	391
Tubercle Bacilli, Differentiating from More Common Acid-Fast Forms .....	240	Veterinary Medical Association Meetings. 131, 259, 374, 491, 605, 719	
Tuberculosis, Bovine .....	537	Veterinary Practice, Water in...	614
Tuberculosis, Case of Bovine, in Man .....	476	Veterinary Profession, House Committee on Military Affairs in Congress Again Compliments the .....	15
Tuberculosis in Goats .....	98	Veterinary Service, the United States Government Saves Money by Increasing the Efficiency of Its.....	144
Tuberculosis, Production of Artificial Immunity Against in Domestic Animals .....	278, 392	Veterinary Therapeutics, Faradization in .....	476
Tuberculosis, Regulations Relating to .....	577	Viability of the Anthrax Bacterium .....	76

	PAGE		PAGE
Victory, the Swift, Strong Rush to Final .....	504	Wide Pharyngeal Perforation by Abscess of Strangles.....	677
Volume Forty-five .....	18	Worms, Nervous Lesions in In- toxication by .....	269
Water in Health and in Disease	73	Wounds, Methylene Blue in the	
Water in Veterinary Practice...	614		
What <i>The Army and Navy Jour- nal</i> Does for the Military Vet- erinarians and What We Hold It Should Do.....	12	X-Ray in Canine Practice.....	673

# AMERICAN VETERINARY REVIEW.

APRIL, 1914.

---

## EDITORIAL.

---

### EUROPEAN CHRONICLES.

Paris, February 15, 1914.

TENTH INTERNATIONAL VETERINARY CONGRESS, LONDON.—  
I have received the preliminary programme of this important meeting which will be held in London from the 3d to the 8th of August, 1914.

It is the jubilee congress, and is being held in London by the express desire of the veterinarians of the world in honor of the distinguished English veterinarian, John Gamgee, at whose suggestion international veterinary congresses were first instituted.

Foreign countries have been invited to send official delegations, and the British committee of organization has extended a hearty invitation to their foreign colleagues in every country. Visitors are invited to reach London on Saturday, the 1st of August, as on the evening of Sunday there will be a preliminary reception, to enable members to meet each other, discuss arrangements for the official opening of the congress and obtain any further information regarding the arrangements they may desire.

The official opening will take place on Monday, the 3d, when the committee hope to secure the patronage of an exalted personage to open the congress. Arrangements as to this matter have not yet been completed.

The meetings of the congress will be held at Central Buildings, Westminster, London, which offer exceptional facilities for the purpose, and are close to the houses of Parliament.

The entertainments will be numerous. The foreign office will

give one and the British committee has organized excursions, such as visits to noted herds and studs, to the quarantine and research stations of the Board of Agriculture, to places of historical interest and places noted for beautiful scenery.

Arrangements for traveling will be made on behalf of the members of the congress and the accommodation at hotels and restaurants will prove very moderate. A list of hotels with their charges will be presented later.

In relation to membership, the British committee have fixed the amount of subscriptions for ordinary members at £1 (say \$5). Subscriptions for lady members at five shillings. Subscriptions should be sent to the Honorary Treasurer, Mr. T. W. Garnett, M.R.C.V.S., 10, Red Lion Square, London, or the treasury of the several national committees.

\* \* \*

At a meeting of the organizing committee, held the 9th of January, where many members were present and where the secretary made his report in relation to the many invitations that had been sent to foreign and colonial officers, to veterinary schools which were not government institutions, etc., etc. The treasurer also made his report, after which the secretary presented the following as being the general arrangement for the general meetings with the list of the reporters of the various subjects:

#### GENERAL MEETINGS.

1. OFFICIAL OPENING.

2. *Foot and Mouth Disease*. (Reporters marked \* have not yet replied.)—Herr Dr. Nevermann, Berlin; Inspector E. Leclainche, Paris; \*Dr. Mohler, Washington, D. C.; Dr. Remmetz, of the Hague; Prof. E. Hess, of Bern; Prof. Mettam, of Ireland; Dr. Josef Rudovsky, of Brunn.

3. *Tuberculosis*.—Prof. Dr. Eber, of Leipzig; Prof. Vallée, of Alfort; Prof. Sir McFadyean, of London; Mr. G. Rigner, of Stockholm; Prof. de Jong, of Leiden.



4. *Epizootic Abortion*.—Prof. Dr. Zwick, of Berlin; Prof. Moussu, of Alfort; Sanitary Officer Sven Wall, of Stockholm; Sir S. Stockman, of London.

5. *Public Control of the Distribution and Sale of Milk in the Interests of Public Health*.—Dr. A. D. Melvin, Bureau Animal Industry, Washington, D. C.; Prof. Dr. von Ostertag, of Berlin; Mr. S. Nystedt, of Stockholm; Mr. Brittebank, of Manchester.

#### 6. CLOSING MEETING.

#### Section 1. VETERINARY SCIENCE IN RELATION TO PUBLIC HEALTH.

1. *Meat Poisoning—Its Pathogenesis and Measures Necessary to Guard Against It*.—Prof. Bougert, of Berlin; Dr. Hans Messner, of Karlsbad; \*Dr. Guillaume de Nice.

2. *General Principles to Be Observed in the Inspection of Carcases and Organs of Tuberculous Animals with a View to Determine Their Safety as Articles of Human Food*.—M. le Dr. Stubbe, Brussels; M. Cesari, Paris; Herr Dr. Nieberle, Hamburg; \*Herr Hy. Hansson, Stockholm.

3. *Disinfection of Waggons*.—M. le Prof. Dr. Bidart, Université, Buenos Aires; Herr Dr. Titze, from Berlin; M. Rabieaux, Paris; \*Prof. Meloni de Naples.

#### Section 2. PATHOLOGY AND BACTERIOLOGY.

1. *Johne's Disease*.—M. le Dr. Olaf Bang, Copenhagen; Herr Prof. Dr. Miessner, of Hanover; Mr. A. L. Sheather, B.Sc., M.R.C.V.S., from London.

2. *Bovine Piroplasmonis (European)*.—Prof. Dr. Knuth, of Berlin; M. le Prof. S. von Ratz, from Budapest; Mr. W. G. Wragg, M.R.C.V.S., from London.

3. *Ultra-Visible Viruses*.—Dr. K. F. Meyer, University of California, U. S. A.; M. le Prof. Panisset, Lyon; \*Herr Dr. Pfeiler, Bromberg.

4. *Distemper—Etiology and Vaccination*.—Herr Prof. Dr. S. Sigismund Markowski, Lemberg; M. Carré, Alfort.

#### Section 3. EPIZOOTIOLOGY.

1. *Anthrax*.—Dr. W. H. Dalrymple, Louisiana State Uni-

versity, U. S. A.; Herr Dr. Aladar Lukacs, from Budapest; Herr Prof. Dr. J. Szpilman, from Lemberg; Major Holmes, Muktesar, India.

2. *Swine Fever*.—Dr. Marion Dorset, U. S. A., Department of Agriculture, Washington; Herr Prof. Dr. Hutyra, Budapest; \*Herr Dr. R. Frauenberger, from Austria; \*Herr Dr. Glässer, from Hannover.

3. *Glanders*.—M. M. de Roo, from Brussels; M. Drouin, of Paris; Herr Prof. Dr. J. Schnürer, from Vienna; Mr. J. R. Jackson, M.R.C.V.S., Board of Agriculture, London; Herr Prof. Dr. Peter, of Hanover.

4. *Sarcoptic Mange of the Horse*.—M. le Vétérinaire Principal A. Barrier, Paris; Col. Butler, from London; Herr Theophil Halski, Czernowitz, Austria.

#### Section 4. VETERINARY MEDICINE AND SURGERY.

1. *Anaesthesia*.—M. le Prof. Hendricks, from Brussels; Dr. L. A. Merillat, Chicago, U. S. A.; Herr Prof. Vennerholm, of Stockholm; Prof. G. H. Wooldridge, of London.

2. *Laminitis*.—M. le Prof. Liènaux, from Brussels; M. le Vétérinaire Principal Joly, Tours; Prof. James Macqueen, from London.

3. *Surgical Treatment of Roaring*.—Herr Prof. Dr. Eberlein, of Berlin; Dr. W. L. Williams, of Cornell University, U. S. A.; M. le Prof. Dr. Fontaine, from Saumur; Mr. F. T. G. Hobday, F.R.S.E., F.R.C.V.S., of London.

4. *The Use of Drugs in the Treatment of Disease Caused by Nematode Worms*.—M. le Prof. Van den Eckhout, of Brussels; M. le Prof. Railliet, from Alfort; Prof. J. F. Craig, M.A., M.R.C.V.S., from Dublin; M. le Prof. Perroncito, R. Università di Torino, Turin.

#### Section 5. TROPICAL DISEASES.

1. *Diseases Transmitted by Ticks; Their Classification, Treatment and Prevention*.—\*Dr. D. E. Salmon, Washington, U. S. A.; M. le Prof. J. Lignières, from Buenos Aires; Sir A. Theiler, K.C.M.G., Transvaal; Mr. C. E. Gray, M.R.C.V.S., Transvaal; \*Dr. Paulo Parreiras Horta de Rio de Janeiro.



4. *Diseases Transmitted by Winged Insects; Their Classification, Treatment and Prevention.*—M. Cazalhou, from Rennes; Mr. R. E. Montgomery, M.R.C.V.S., from East Africa; \*Dr. L. O. M. Howard, Washington, U. S. A.; \*Dr. Pinto Guedes, Rio de Janeiro; \*Dr. Christino Cruz Filho, Rio de Janeiro; Prof. A. Lanfranchi, Parma Italie.

(The list was adopted.)

\* \* \*

APPLICATIONS OF THE ROENTGEN RAYS.—In *Arhiva Veterinara*, the excellent journal of veterinary medicine, published by the Faculty of the High School of Bucarest, Dr. Sava Joan, of the laboratory of contagious diseases of Professor C. S. Motas, there is an important article on the X-rays, whose application constitutes that part of science known as *radiology*.

Medical radiology, says the writer, is divided in two principal branches, the radioscopy and radiography on one side, and radiotherapy on the other. This being established, Dr. Sava Joan enters in long details on this last, considering all the generalities relating to it, necessary elements, Rayons X, in general, their physiologic action, and their applications in human medicine, in diseases of the nervous system, in tuberculous diseases, in malignant tumors and then comes to those in veterinary medicine

In that branch of medicine, Rayons X have been used but little with a therapeutic object. Those who have paid attention to it are Eberlein and Beyreuther.

"In 1907 the first submitted to the action of Roentgen rays a horse affected with canker of the foot. Three times a week, during ten minutes each time, the rays were applied. After 21 sittings there was no more proliferation of the tissue, but recovery was not radical. Another horse having the same trouble was also treated three times a week," but the result was negative, the horse grew worse.

The rays were also tried in bothriomycosis.

"In 1912, Eberlein, following the works of Beyreuther, made direct irradiations in bothromic tumors and obtained their removal."

Dr. Sava Joan has used the rays in a dog affected with sarcoma of the lower region of the neck, giving him five sittings of 15 seconds every three days. Fifteen days after the first application the dog died on account of his greatly debilitated condition. There was no change in the condition of the sarcoma.

\* \* \*

But these are not the only cases alluded to by the author of the article of *Arhiva Veterinara*. He publishes a series of observations, thirteen in number, relating to the treatment of *dermodectic mange in dogs by the X-rays*.

In these thirteen cases observed in dogs of different breeds, varying in age, but rather young, the follicular mange was observed localized and generalized, under the pustular or the squamous form and complicated in some with distemper. *Radical* recovery has been the rule. Death occurred with distemper in two cases and from general anemia in one. The number of sittings to which the animals were submitted varied in number according to the extent and location of the diseases and had duration which varied between 10 and 15 minutes. The treatment is long and in these cases has varied between one and five and a half months.

After making a few general remarks on the analysis of these cases, Dr. Sava Joan concludes:

1. Dermodectic mange with squamous form is rapidly cured by X-rays.
2. The limited pustular form is also, providing the number of sittings is increased.
3. The duration is from 1 to 2½ months, depending on the severity of the case and the sensibility of the skin.
4. Old and generalized dermodectic mange is not influenced by X-rays; on the contrary, they seem to hasten death of the patient.

The well-known rebellion of follicular mange against most therapeutic agents had stimulated the inquiries of specialists in skin diseases of dogs and the publication of the learned doctor of Bucarest brought Dr. Roussel, one of them, before the Société Centrale de Medecine Vétérinaire, when he declared that more than eighteen months ago he had tried the application of the X-rays in the treatment of follicular mange and that all his experiments had failed.

In collaboration with a physician, chief of the laboratory of radiology of a hospital, he had submitted dogs to the X-rays, one, two and three times a week, for two, three, four, six and even eight months and that the treatment had always failed. During the treatment the disease seemed to improve, to resume a new development as soon as it was stopped.

"At any rate, said Dr. Roussel, I have noticed that whatever therapeutic is used against that disease, improvements are often observed at the beginning to be followed in most cases by complete failures."

The Bucarest treatment needs confirmation.

\* \* \*

SPONTANEOUS SEDIMENTATION OF THE BLOOD.—In years gone by, when the great discoveries and application of hematology were unknown, the phenomena that could be observed in the blood were considered of no little importance, and the diagnostic and prognostic deduction that were made by the peculiarities that were noticed constituted important elements that practitioners were anxiously taking advantage of. To-day, physicians without entirely ignoring the peculiarities and changes that the blood may present, can go further and apply better and more thorough knowledge in their study relating to the condition of the blood and principally in looking for the variations that in quantity and in quality the elements of the blood may present.

It is with the aid of the microscope only that those researches can be made and that the numeration of the red corpuscles, the

counting of the white, can be obtained and that valuable information can be gained on the richness of the blood with those elements, on the variations of the hemoglobinic tenor, on the importance of polynucleosis or mononucleosis. But the methods of investigations that we speak of and the hematologic researches that are connected with those questions are very complicated and on that account are not in daily practice, especially in veterinary practice, where a wide application would render most valuable service from a clinical point of view. In other words, cannot a simple method be found which veterinarians could very easily resort to?

Our collaborator, E. Cesari, chief of the Laboratory of the Hippophagic Abattoir in Paris, answers this question in the *Revue Generale* by an affirmation. His method consists simply in taking a few cubic centimeters of blood from a horse and letting its *sedimentation* take place after it has been made uncoagulable by the addition of some special salts, sulphate of magnesium, chloride of sodium, oxalate of soda, citrate of soda or in preference fluoride of sodium, used as dilution to the tenth and in solution of 3 per cent.

The technic of the operation consists in aspirating a little over 1 c.c. of the solution of fluoride into a syringe of Pravaz or a like of 10 c.c. size, introducing the needle into the vein (the jugular best), taking 9 c.c. of blood and then after withdrawing empty it into a cylindrical vial, or test tube, doing it slowly and being careful to avoid the formation of foam. The vial or tube is then put on a stand, and left in a vertical position until sedimentation is completed, 24 hours is the maximum, when measures are taken of the height of the red sediment (hematies), that of the white (leucocytes), that of the entire contents as far as the level of the plasma and the peculiarities between the different layers are called upon to give the elements of the clinical examination of the blood.

\* \* \*

The process of sedimentation begins and will take between 12 and 24 hours to be completed.

The dropping of the red corpuscles begins almost immediately, progresses rapidly and then becomes slower. As the hematies are falling and collect at the bottom of the glass, the plasma becomes clearer and forms at the upper part of the tube a column whose height will vary. Soon then, on the surface of the red sediment there appears a greyish white ring formed by the white corpuscles. And when the process is completed there is a red deposit which represents the volume of the hematies and a white which represents that of the leucocytes.

At this point Mr. Cesari goes on with the deductions that can be made by the examination of these three portions, contained in the glass tube and terminate by the consideration of the clinical applications of his method.

The various indications thus obtained upon the composition of the blood by sedimentation permit us to see the importance of the applications of the method to the clinic.

First of all, for all that concerns anemias, it is certain that sedimentation will immediately give information upon the degree of globular poverty of the blood; it will also permit us to appreciate the functional work of the hematopoietic organs and also that of the hemoglobinic value by the rapidity of the dropping of the hematies; and finally it will help to rapidly control the efficacy of the treatment prescribed, whose effects shall be measured by the increase of the red sediment.

For the leucemias, it is scarcely necessary to indicate the diagnostic value of the test by sedimentation.

The peculiarities as well as the variations offered by the leucocyta sediment during the various diseases will, no doubt, furnish precious information from the diagnostic and prognostic point of view, when they will be fully appreciated, as they must be later on by practitioners. Clinical observations will establish them.

The article of Mr. Cesari, the description and the application of his method will attract attention. For veterinarians especially,

it will prove of great advantage, being simple, not demanding expenses, and of easy utilisation. As the author says, it needs very little to make it most appreciable and useful. Will clinicians put it to a test?

\* \* \*

PROF. EBERLEIN'S SURGICAL TREATMENT OF ROARING.—Although this question is now pretty well settled, in Europe, where the operation of Williams has received such success as confirmed by the many operations recorded by Prof. Hobday in England, and also by the fact of its having been raised in the veterinary schools as the classical operation, its practice being one of the many branches of the department of operative surgery, although all those are facts well established, improving methods, so named by their originator, are now and then brought out.

From the *Archiv. f. weisens und prakt. Tierheilkunde*, the *Annales of Brussels* are producing a new *modus operandi*, recommended by Prof. Eberlein from Berlin.

There is no doubt, says the learned professor, that the surgical treatment of roaring gives the best results, 70 per cent. recoveries being proved by statistics.

Prof. Eberlein operates as follows: After having the animal well secured on his back, he divides the musculo-cutaneous layer, the crico-thyroid membrane and anesthetizes the ventricles of the glottis. He introduces then the index finger of the left hand in the left ventricle, and stretches the dorsal portion of the corresponding vocal cord by flexing slightly the finger and raising it gently. He then makes with a special pointed bistouri an angular incision measuring 1 to 1½ centimeters, with an edge running along the anterior border of the vocal cord and the other along the ventral border of the arythenoid cartilage.

*The result of the operation, according to the author, depends, in the first place, on the good direction of this angular incision. One must watch that the first incision runs exactly along the anterior border of the vocal cord and especially that it does not*



*encroach on it transversally.* The very important part to be enacted in the process of recovery by the vocal cord is annihilated when this cord is cut or divided transversally.

Then the author takes out the left index finger from the ventricle and introduces it in the angular wound, and by a slight cork-screwing motion pushes it easily towards the corresponding crico-arytenoid articulation.

This has for its object the isolation of the mucous membrane of the ventricle. Once the bottom of the cul-de-sac is loose, the index finger is then flexed slightly and with a blunt bistouri the mucous membrane is isolated, being extended over the finger as a finger-glove, by pressure of the thumb. The mucous membrane of the right ventricle is removed in the same way.

It seems to us that the method of Prof. Eberlein, good as it may be, has not the simplicity of that of Williams.

\* \* \*

BIBLIOGRAPHIC BULLETIN.—The following are thankfully acknowledged:

*The Mechanical Transmission of Surra by Tabanus Striatus*, by Mr. Bruin Mitzmain, M.S., Veterinary Entomologist under the direction of Archibald R. Ward, B.S.A., D.V.M., Chief Veterinarian (Bureau of Agriculture, Philippine Islands).

*Veterinary Notes.* December, 1913. Parke, Davis & Co. *Report on Epizootic Abortion in Sheep, Part III, Abortion*, with appendix to Part III by Sir J. McFadyean, M.R.C.V.S., M.B., C.M., B.Sc., L.L.D., and Sir Stewart Stockman, M.R.C.V.S.

*Hog Cholera*, Farmers Bulletin, Dept. Agriculture of Tennessee, George R. White, M.D., D.V.S., State Veterinarian.

*Agricultural Journal*, South Africa, Nov., 1913.

Bulletin of the Dept. of Agriculture No. 1. *Medical Milk Commissions and Certified Milk*, by Ernest Kelley.

\* \* \*

P. S.—In the February REVIEW, just received, on page 657, there is a letter from Sir John McFadyean to the *London Times*

referring to a statement made at the London Medical Congress by Prof. Harvey Cushing, of Harvard University (I believe), in relation to American veterinary surgeons.

About the time that this statement found its way in English veterinary papers, I felt it my duty to call the attention of my American confrères to it, and to that end mailed in my chronicle for December, 1913, remarks upon it.

By some way or another these did not find their way to our American office. (?) But I do not wish it to be supposed that I should have overlooked and neglected my obligations towards the American profession and ignore the ridiculous and gross error of the American surgeon.

A. L.

---

### WHAT THE ARMY AND NAVY JOURNAL DOES FOR THE MILITARY VETERINARIANS AND WHAT WE HOLD IT SHOULD DO.

"You never can tell, sir, you never can tell."—Repeated with frequency by the waiter in Bernard Shaw's drama, "*You Never Can Tell*."

With the equanimity and calm demeanor of a very dignified newspaper, *The Army and Navy Journal* takes pains to correct us at one point in what we said in our editorial on the Army Veterinary Service Bill (H. R. 4541 in the House and S. 4331 in the Senate) in our February issue. In its edition of February 21st it says:

We would suggest to the AMERICAN VETERINARY REVIEW that a more careful reading of the *Army and Navy Journal* would have saved it from the mistake of saying of this paper: "It has always published the news of the transfers from one regiment to another, from one part of the country to another, from one detail to another, of every commissioned and non-commissioned officer mentioned in Army orders; but never so much as a word came out on orders for veterinarians." The same rule governs our publication of orders relating to veterinarians as of other officers, and whenever we receive an order relative to the change of station or transfer of a veterinarian we publish it under the head of the organization to which he is attached.—*Army and Navy Journal*, February 21, 1914.

The correction stands; for, on looking over its news of the regiments, we find that the *Journal* is right. In this one point we were mistaken, and, acknowledging our error, with uncov-



ered head we may hope to bow ourselves into the good graces of the *Journal* again, conservative a newspaper as it is.

However, the quotation printed above, taken from *The Army and Navy Journal*, is noteworthy not so much for what it says as for what it leaves unsaid. Sir Robert Clive, winner of the battle of Plassey, who subdued a large portion of India and brought it under the British crown, was, late in his career, arraigned before Parliament for supposed malfeasance in office, in that it was believed he had plundered the nabobs. Macaulay states that in the midst of the trial, he said, concerning the restraint he placed upon himself at times when he might have enriched himself, "Sirs, when I think of this abnegation, I am astonished at my own moderation." The writer of the note quoted from *The Army and Navy Journal*, when he had finished it, must, from the restraint he placed upon himself, have had the same feeling as Sir Robert Clive. The silence of that note speaks volumes. We can take it for granted that *The Army and Navy Journal* found nothing else to correct in our editorial, else it would have done so. This perhaps was not born of charity; for this service newspaper can speak with trumpet tones when it is in the humor.

Is the *Journal* aware that inadvertently it paid us a great compliment, for, if we are not mistaken, and we wish it to correct us if we are wrong, the note quoted contains the first reference by name to the AMERICAN VETERINARY REVIEW, or to any other veterinary magazine, American or foreign, that ever appeared in its columns? We challenge the *Journal* to look over its files from the Civil War days or thereafter until the present and see if it can find a single reference to an American veterinary magazine in all those years. There may be smattering reference to veterinary bills in Congress; but has there ever appeared in all its tomes an article, short or long, in which there was a valiant exposition of the need for improvement of the veterinary service of the army? This service newspaper is proud of its championship in its editorial columns of every good and worthy military cause, of everything which would look towards improvement of

any part of the army service. It has stood as staunchly for the enlisted man as for the commissioned officer. But where, oh where, in any editorial, short or long, has it espoused the cause of the army veterinarian? The reason is not that he is too insignificant; because the *Journal* has devoted yards of space to more humble men than he. Is it because the army veterinarian has been forgotten? Not at all. The *Journal* is an authority on the branches, branchlets and twigs of the military organization and knows something about the army veterinarian and the part he plays in the military scheme, and that is why it recently took us to task.

The reason is, in its note it did not deny it, that the *Journal* has been studying the legislative colors and knows pretty well how the tints are being mixed in the legislative halls for military "bills in Congress." If, forsooth, it thought it said too much in what we quoted from its columns in our February article, it makes amends now by saying little that we can quote for our direct helpfulness. Is this because some knowing one has said to it: "See what you have done. Do not encourage the veterinary service. You see how you are quoted and used when by chance you refer to it." If this is the case we may expect the good, and discreet army newspaper to relapse into its whilom silence. We can have our last word at any rate, even if the *Journal* says no more now, and we will inform it that, should H. R. 4541 or S. 4331 pass, it will give space in short articles, mayhap in editorials to the army veterinary service, not in the well-packed columns to the rear, but well forward in the *Journal*, there may appear articles (speak it now with bated breath) on veterinary officers and their work.

Now it is our duty, as we have been corrected, to likewise correct in turn. In the note quoted in the beginning of this editorial the army service newspaper, in speaking of the place where it publishes army orders concerning detailing regimental personnel, says, "The same rule governs our publication of orders relating to veterinarians *as of other officers.*" This reminds us of what the genial Oliver Wendell Holmes said of "My Country

'Tis of Thee," that the song and his Harvard classmate, Smith, its author, became famous from the use of the "My," which made the song personal to the American people. In this case it is the "other" that would make this part of the quotation apply to the army veterinarian were it not that the "other" is horribly untrue, because the army veterinarians are not yet officers. *The Army and Navy Journal* is excusable for this *lapsus linguae*, and we may credit this "other" to its sense of courtesy. When it is not Homerically nodding, the service newspaper knows that the army veterinarian at best, if success does not fail him this time, congressionally is in process of becoming an officer.

We will close our quarrel with our New York neighbor, the army service newspaper, if it will write an editorial of twenty lines in which it will point out the truthfulness or the untruthfulness of the statements made by Mr. Hay in favor of the veterinary profession on page six of Report 239 of the present Congress, or in the letter of the surgeon general of the army in the same report, pages seven and eight.

G. S.

---

## THE HOUSE COMMITTEE ON MILITARY AFFAIRS IN CONGRESS AGAIN COMPLIMENTS THE VETERINARY PROFESSION.

The Committee on Military Affairs of the House of Representatives in its Report (No. 239, 63d Congress, 2d Session, page six) again compliments the profession and says:

"It is thought that it will greatly improve the service to give the rank provided in this bill, and in that way much money will be saved by virtue of increased efficiency in this service. The veterinary surgeons of this country are a body of highly trained and intelligent men, who have made and are making great strides toward progress in their profession; and it is not reasonable to expect that the Government can secure the best talent of the profession unless some fitting and substantial recognition is given to it.

"The War Department has given its approval to this bill. The Secretary of War recommends that the veterinarians be placed in the Medical Corps. This bill is so drawn that the Secretary of War will be able to place these

officers under the control of any department which he may deem best for the interests and efficiency of this service."

\* \* \* \* \*

The whole profession is more interested in the Army Veterinary Service Bill now than ever, in view of the fact that it is an administration measure. The House Military Committee Report sets this forth fully, as is seen in the following quotations:

#### CONSOLIDATION OF THE VETERINARY SERVICE OF THE ARMY.

WAR DEPARTMENT,  
Washington, June 28, 1913.

SIR—I have the honor to return herewith H. R. 4541, a bill to consolidate the veterinary service, United States Army, and increase its efficiency, and to invite attention to the memoranda of the Chief of the Quartermaster Corps and the Surgeon General.

I am of the opinion that the interests of the service would be served best by the attachment of this corps to the Medical Department, as is the Dental Corps, for the reasons set forth by the Surgeon General.

Very respectfully,  
LINDLEY M. GARRISON,  
*Secretary of War.*

The CHAIRMAN COMMITTEE ON MILITARY AFFAIRS,  
*House of Representatives.*

WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF THE QUARTERMASTER CORPS,  
Washington, June 26, 1913.

#### Memorandum for the Chief of Staff.

1. Referring to your memorandum of June 13, requesting remark on H. R. 4541, a bill to consolidate the veterinary service, United States Army, and increase its efficiency and inviting special attention to the recommendation of the Surgeon General, I desire to advise you that this matter has received careful consideration.

2. The bill H. R. 4541 is satisfactory to this office, except two more veterinarians are required for the Quartermaster Corps than those which will be authorized by section 1, and it is recommended that the word "seventeen" be substituted for "fifteen," line 7, page 1, and that the word "sixty-four" be substituted for "sixty-two," line 9, page 1.

3. While it is believed that the duty of veterinarian is more closely connected with the Quartermaster Corps than the Medical Department, there will be no objection offered on the part of this office to the veterinary corps being made part of the Medical Department, provided that such number of veterinarians as may be required for performance of duties in the Quartermaster Corps will be detailed to that corps and made subject to the supervision and control of the Chief of the Quartermaster Corps while serving therein, as are commissioned officers now detailed to duty in the corps.

4. All papers are herewith returned.

J. B. ALESHIRE,  
*Chief Quartermaster Corps.*

WAR DEPARTMENT,  
OFFICE OF THE SURGEON GENERAL,  
Washington, June 12, 1913.

Memorandum for the Chief of Staff.

Subject: Bill H. R. 4541, to consolidate the veterinary service of the Army and increase its efficiency.

Veterinary medicine is a learned profession, with a voluminous periodical and permanent literature of its own. For efficiency, there is the same necessity that the horse doctor should be learned as for the man doctor, and as his patients are not able to speak and describe their symptoms, a greater amount of scientific accuracy and acumen is necessary for a correct diagnosis. The therapeutics and pharmacy of veterinary medicine are largely the same as for the Medical Service, and in Europe, where veterinary medicine has the dignity and standing of a learned profession, it has made valuable contributions to our knowledge of the causation of diseases. It is believed that it cannot be placed on a high standard of efficiency without long-continued application of the same agencies which have raised the Medical Corps of the Army to its present standard. Conspicuous among these is the system of examination for admission to the service and for promotion. Others which may be mentioned are the liberal supply of literature and appliances and a close touch maintained with the progress of the profession in civil life.

It is believed that these things can be accomplished for the veterinary service only by making it a part of the Medical Department and permitting it to share the administrative machinery of the Medical Corps. This would not only conduce to the elevation and efficiency of the veterinary service, but would also be in the interest of economy, as all of its supplies could be most advantageously purchased, cared for, and issued through the machinery of the Medical Department. As regards the administrative question of supplying veterinary surgeons to the Quartermaster Department, it is believed that no difficulty would arise, as the veterinary officers needed for that service could be placed under the orders of the quartermasters at depots, etc., where their services were needed, or ordered to report to the Chief of the Quartermaster Corps for such service and duty as he might desire to assign them. The establishment of the veterinary service as a corps of the Medical Department, like the Dental Corps and the Army Nurse Corps, is not proposed for the aggrandizement of the Medical Department, but because it is believed to be the only way in which that service can be raised to a fitting plane of dignity and efficiency such as it has reached in European countries and in the armies of the great military nations.

For these reasons the draft of the bill submitted by the War Department on January 6, 1913, a copy of which is attached to the General Staff Report No. 8443, herewith, is believed to be much better calculated to increase the efficiency of the sanitary service of the Army than the bill H. R. 4541 herewith.

GEORGE H. TORNEY,  
*Surgeon General.*

The time is getting short, as the present session of Congress will surely close in June, and we urge every man who reads this to use his influence with senators or representatives in Congress to assist in the passage of the Army Veterinary Service Bill. Write them earnestly, persistently, but discreetly, seeking their favor for the bill. There never was a time when the chances for



the passage of the bill were better or as good as now. The War Department is for us. The political powers that be in the House are for us. The leader of the political strength for the government in the Senate, Mr. Kern, is for us. The sub-committee of the Senate, we are firmly impressed, is as fair-minded a body of men as we could wish. Our friends are increasing in numbers daily. Your political friend should be the whole profession's political friend. Write him insistently to do all he can for H. R. 4541 or, if he is a senator, for S. 4331. *Veterinarius victor*—the veterinarian shall be victor!

G. S.

---

#### VOLUME FORTY-FIVE.

With the delivery of 1,500 pages of the choicest scientific and practical material during the past year, as a guarantee that our numbers grow better with each issue, we enter upon Volume XLV, with the full confidence and hearty support of the American veterinary profession. We need not waste valuable and much needed space in telling our subscribers what we are going to do for them in the year that we are just entering upon with the April number; but will, in as brief a manner as possible, express our deep appreciation of their continued support, both financial and moral, as expressed by the pouring in of their renewal checks and kind words of appreciation of our efforts, which accompany them; both of which are essentials in the continuance of the highest type of return service. It is *your* magazine, use it to exchange your professional thoughts, broaden your professional knowledge and increase your professional value to each other and to your *clientèle*.

---

AMONGST NEXT MONTH'S LEADERS: *Hog Cholera and the Production and Use of Hog Cholera Serum*; by D. E. Salmon, former Chief U. S. Bureau of Animal Industry.

## ORIGINAL ARTICLES.

### THE RELATION OF VACCINE THERAPY TO VETERINARY PRACTICE.\*

BY R. E. SPLINE, M.D., NEW YORK.

A careful consideration of vaccine therapy reveals the fact that it involves almost all of the great biologic principles. These may, however, be grouped under two headings—infection and immunity. Neither of these fields has any well-defined limits. In the elaboration of research in them, one is led into still greater problems of biology, such as laws of inheritance, specie characteristics, mutation of species and, upon the side of the infected host, there are almost all of the great problems of physiology and pathology.

It was Pasteur who first demonstrated that material progress, in the treatment and prevention of the infectious diseases, could only be achieved by the recognition of the fact that the production of active resistance to an infecting organism, on the part of a susceptible animal, can be brought about by the introduction of the infecting agent into the animal body.

NATURE OF INFECTION.—Not only must the infecting organism come in contact with the body tissues, in order to produce disease, but it must be able to grow and multiply, and overcome the resistance of the body. The symptoms and signs of infections do not appear as soon as the pathogenic organism enters the body. The interval between the invasion of the disease and the appearance of symptoms is known as the incubation period and varies according to the biologic characteristics of the infecting organism; and it is also influenced by the number and virulence of the organisms, the location of the portal of entry, and the individual susceptibility of the host. The symptoms produced by the

\*Read by invitation before the Wisconsin State Veterinary Society at Milwaukee, February 10, 1914.

From the Lederle Antitoxin Laboratories, New York.

organism will vary as the organism acts locally or generally. In local infections, the most marked disturbance occurs at the portal of entry, while in general infections, the reaction manifests itself in the whole or a large part of the body. The appearance of general symptoms varies greatly with the rapidity of production and absorption of toxic products. Many infectious diseases are self-limited in their course; recovery taking place after a rather definite period of time has elapsed. When this is not the case, the infection becomes chronic and gives rise to various conditions, depending on the species of the organism, the part of the body involved, etc.

The invasion of the body by infective micro-organisms may best be conceived as a contest between the invading organisms on the one side and the resisting tissues of the animal body on the other. In other words, disease is simply a war between the tissue cells and the bacteria. If the tissues are not of sufficient vigor to destroy the invading bacteria, or to render inert their poisons, the bacteria are victorious and infection results. On the other hand, if disease does not occur, the tissues are victorious and are then said to be *resistant* or *immune* to this particular infection.

There are two factors which influence susceptibility to disease: (1) Intrinsic factors, which depend upon the biologic properties of the infecting bacteria, including their virulence and the kind of poison which they produce; (2) Extrinsic factors or environmental factors, indicated by the age, breed, food, temperature, exposure, etc., of the host—that is, the animal. There is a certain balance or equilibrium always present, depending upon these two factors. The toxemia of most infectious diseases is now regarded as an anaphylactic manifestation, which will be discussed later.

Infectious diseases may be divided into two distinct types: (1) *Toxemias*, caused by specific toxins of bacteria, such as the diphtheria and tetanus toxins; (2) *Bacteriemias*, produced by the splitting up of bacterial protoplasm or by a breaking down of the protein poisons of bacteria. In bacteriemias, the degree of infection is dependent upon the manner and rapidity with which the bacteria or their contained protein poisons are split up.



**OFFENSIVE FORCES OF INVADING MICRO-ORGANISMS.**—The question naturally arises, why does not every infection become generalized and lead to the destruction of the host? Evidently this must depend upon one of two factors or an interaction between the two, namely, the nature of the micro-organism and the resistance which the host offers. Those forces which are at the disposal of the invading organism, and, by virtue of which it strives to maintain itself in its new environment, may be termed its aggressive or offensive forces in contradistinction to the defensive forces of the host.

*Virulence.*—Clinically, we have long been in the habit of ascribing the varying severity, observed in the different cases of infectious diseases, to differences in the virulence of the organisms. In other words, the severity of the clinical picture was regarded as an index of the severity of the infection. This conception of the term is now no longer tenable. The term "virulence," in its modern meaning, has reference essentially to the ability of the organism to multiply in the body of the infected animal; and is virtually synonymous with aggressivity or infectiousness. Therefore, it is erroneous to speak of the virulence of a tetanus bacillus or of a diphtheria bacillus to indicate the severity of a given case. The clinical picture is essentially due to the action of toxins, and one should accordingly speak of the toxicity of the organism. By a particularly virulent infection, we mean an infection during which there is, on the one hand, an active multiplication of organisms and, on the other, a corresponding toxin-formation with the production of a severe clinical picture.

*Difference in Virulence.*—The virulence of the different groups or strains of bacteria differs considerably, and may be due to certain changes of a morphological or physiological character by which the organism adjusts itself to its new surroundings; or, to some substance secreted by the infecting organism.

*Attenuation of Virulence.*—The virulence of an organism may be attenuated or decreased in many ways. Attenuation may be brought about (1) by exposure to temperatures unfavorable

to the growth of the organism; (2) by prolonged exposure to the air; (3) by exposure to sunlight; (4) by increased atmospheric pressure; (5) by the electric current; (6) by certain chemicals, such as glycerin, carbolic acid, alcohol, etc., being careful to employ concentrations which will not actually kill the organisms; (7) by growing the organism in the presence of others which tend to crowd out the one under consideration; (8) by growth in immune serum; (9) by passage through animals. By animal passage, the virulence of the organism is usually specifically *increased* for the species of animal employed; while it either remains unchanged for other animals or is associated with an actual decrease in virulence for other species of animals. The practical application of this principle was used by Pasteur, in immunizing against rabies, by passing the virus through rabbits; thereby increasing its virulence for rabbits but decreasing it for man.

**BACTERIAL POISONS.**—All of the infectious diseases, of which the infecting agent is known, are due to toxic substances derived from the offending parasite. Regarding the nature of the toxic agents which are responsible for the symptom-complex of the infectious diseases and the mechanism of their action, our knowledge is yet very meager. But three groups of substances are now recognized, namely, toxins, endotoxins and bacterial proteins.

*Toxins.*—A toxin is a product of the anabolic activity of an organism, and its production is specific; for example, only one organism is known to produce tetanus toxin. It is now a recognized fact that these toxins are actually responsible for the clinical picture of the corresponding diseases.

*Endotoxins.*—Endotoxins are not secreted by the living organism, but are only set free after the death and disintegration of the bacteria.

*Bacterial Proteins.*—The bacterial proteins seem to have the same properties in all bacteria; not causing any specific infection, but all alike causing fever, inflammation and suppuration. They are not, in themselves, toxic to the host. They have, however,

gained new importance, since it has been demonstrated that the introduction of foreign proteins of whatever kind leads not only to increased resistance or immunity against such proteins, but may also induce a state of hypersensitiveness or anaphylaxis such that a subsequent injection of the proteins, after a certain interval, may produce serious symptoms and even death. The host develops a capacity to break down the bacterial proteins into secondary products, which are probably toxic elements and which cause the phenomenon of disease.

**DEFENSIVE FORCES OF THE HOST.**—We have said nothing as yet of the mechanism by which the host defends itself against infections, and the action of those poisonous products which are so largely responsible for the clinical picture of disease. We may distinguish between those forces which are at the disposal of the animal body at the moment of infection and those which develop only in the course of the infection and because of the infection. The former comprise the phagocytic forces of the body, as well as the normal bactericidal power of the blood; while the second class includes the various antibodies or substances which are liberated from the cells in consequence of the introduction into the circulation of foreign cells or cell-products.

*Phagocytic Forces.*—In considering the phagocytic forces, we shall here merely mention that the phagocytes and opsonins are involved and will reserve the discussion until we come to consider the mechanism of immunity.

*Bactericidal Substances of Normal Blood.*—That normal blood-serum possesses active bactericidal properties has been demonstrated by Fodor, Nuttall and Buchner. The latter ascribed the bactericidal action of blood-serum to substances which he assumed to be of the nature of ferments and which he designated as "alexins." Subsequent studies which are intimately associated with the names of Ehrlich, Morgenroth, Bordet, Metchnikoff, Neiser and Wechsberg, etc., have shown that the bactericidal action of normal serum is dependent upon the presence of two substances, one of which, now generally spoken of as *amboceptor*, serves as a connecting link between the bacteria and the

second substance, designated as *complement*. The complement itself is not capable of combining with the bacteria, whereas the amboceptor is readily anchored to the organisms. Much of our knowledge of the mechanism which is involved in the interaction between bacteria, amboceptor, and the complement has been obtained from the study of the closely corresponding hemolytic properties which certain sera possess for red corpuscles of animals of alien species.

An important, practical fact is that the amboceptor normally present in blood-serum and which is called *natural amboceptor* is not as specific nor as stable as the amboceptor which is produced by inoculation of foreign cells and which is called *immune amboceptor*. As a result of infection or artificial immunization, the amboceptor content of the blood-serum is materially increased, while the complement remains the same. Recent research regarding the nature of amboceptor and complement tends to show that complement is probably a lipid-albumin product, while amboceptor is of the nature of a ferment.

The principle involved in the interaction between bacteria, amboceptor and complement receives a practical application in the complement fixation test, which was originally devised by Bordet and Gengou and made use of by Wassermann in the now well-known Wassermann test in human medicine, and which is frequently used as a method for diagnosing glanders in veterinary medicine.

*Antibodies.*—An animal organism invariably responds to the parenteral introduction (that is, the introduction by other channels than through the gastro-intestinal tract), of foreign cells or products of foreign cells and produces substances which, in a general way, tend to destroy those which indirectly gave rise to their formation. The reaction products which are formed in the body of the treated animal are conjointly spoken of as "antibodies," and the substances whose introduction from without gives rise to their formation are termed "antigens." The discovery of these substances and their bearing upon the subject of immunity has opened up an enormous field for fruitful research.

not only in the domain of medical science, but in that of general biology as well. Among these substances may be mentioned *antitoxins* (Behring and Kitasato) which neutralize the harmful effect of bacterial toxins; *bacteriolysins* (Pfeiffer) which possess the property of causing dissolution of the corresponding organisms; *agglutinins* (Gruber and Durham) which cause the clumping or agglutination of bacteria, and the cessation of their motility; *precipitins* (Kraus) which, when brought together with the clear filtrates of bouillon cultures, will cause a precipitate to collect at the bottom of the tube. In the form of the "biological blood test," the principle of precipitins is now generally utilized for the purpose of determining the origin of blood stains and, upon the same basis, it has been possible to establish zoological relationship between different animals. There still remain other groups of antibodies which are variously known as cytolytins, antiferments, antilytoids, albuminolytins, etc.

**TYPES OF IMMUNITY.**—Immunity may be defined as nonsusceptibility to disease or, as the ability to resist the action of the causes of disease. The body may be immune because of inherent properties or, because it has acquired immunity. Immunity due to inherent properties is called *natural immunity*, while the immunity acquired during life is called *acquired immunity*.

*Natural Immunity.*—Natural immunity is demonstrated by the nonsusceptibility of certain animals to the action of some of the micro-organisms causing disease in man. It is an immunity of species, race and, at times, of family. Generally speaking, the natural susceptibility to infection by micro-organisms differs with the different classes of animals, with different genera, with different species, and even with different varieties and individuals.

*Acquired Immunity.*—Specific acquired immunity results only after a pathological condition exists or has existed. In these cases, the individual becomes immune because he has survived a natural course of the disease, as occurs after an attack of scarlet fever; because he has gone through a modified form of the disease, as obtains in vaccination against smallpox; or because he received substances prepared by some other individual



or animal that has gone through a natural or modified course of the disease. Two types of acquired immunity are recognized and are referred to as *active* and *passive*.

*Active Immunity*.—An individual acquires an active immunity to certain micro-organisms when he himself has survived a natural or modified course of the disease produced by infection with this or that particular organism. In this case, the individual produces his own immunity either because he has had the disease naturally or because it has been intentionally and experimentally produced. Experimental, artificial or intentional active immunization is usually called *vaccination*, and generally produces in the individual a mild form of the symptoms usually found in the infection. Active immunization, protective and curative, is most frequently attempted with injections of killed bacteria, although toxins and living organisms are used to immunize against certain infectious diseases. Attenuated or killed organisms prepared for immunization are referred to as *vaccines*.

*Passive Immunity*.—Acquired passive immunity takes place as the result of the introduction of immunizing substances that have been prepared by actively immunized individuals or animals. This is usually conferred by the injection of blood-serum from immunized animals. There are two classes of immunizing substances. Those acting on bacteria are said to be antibacterial; while those acting on toxins are called antitoxic.

**MECHANISM OF IMMUNITY**.—Various explanations of the causes and processes of natural acquired immunity have been attempted. We shall here speak of three.

*Phagocytic Theory of Metchnikoff*.—In 1884, Metchnikoff published the first of a series of observations upon the behavior of certain cells of the lower animals toward insoluble particles that may be present in the tissues of these animals. The outcome of these investigations was the establishment of his well-known doctrine of phagocytosis, the principle of which is that the wandering cells of the animal organism, the leucocytes, possess the property of taking up and rendering inert and digesting micro-organisms which they may encounter in the disease.



Metchnikoff believes that in this way immunity from infection may in many cases be explained. He believed that immunity was essentially a matter between the invading bacteria and the leucocytes.

*The Side-Chain Theory of Ehrlich.*—The theory advanced by Ehrlich in 1897 stands out most prominently in attempting to explain the phenomenon of immunity. Ehrlich conceives the individual cell to be a complex molecule, comprising a primary central nucleus to which are attached its secondary atom-groups, side-chains, or receptors. Their principal function is to convert foreign substances into food, which must enter into chemical combination with the central part of the cell, so as to be assimilated. The receptors have, however, a great variety of functions, so that at times they bind the cell to substances that are not foods but actually cell-poisons. Injury to one or more of these receptors, caused by combining with a poison, results in disturbance of the cell-equilibrium, and consequent effort of the surrounding receptors at compensating repair. With this liberation of bioplastic energy, more plastic material is generated than is necessary for the repair of the injury. The excess of this material, being disengaged from the parent-cell, is thrown into the circulation where it combines, according to Ehrlich, with the poisons, forming antitoxin compounds, and can, therefore, be reasonably regarded as the antitoxic material of artificially immune animals.

*Opsonic Theory of Wright.*—In 1903, Wright and Douglas pointed out that there are certain substances in sera which so affect bacteria that they are more easily taken up and disposed of by the leucocytes. These substances they termed *opsonins*. Wright and Douglas decided that the amount of opsonins in sera is variable; that these substances are of importance in infection, and can be increased or decreased by injection of killed cultures of bacteria. They express the amount of opsonins present in serum in terms of the opsonic index of the patient's blood to the phagocytic index of serum from normal individuals.

**ANAPHYLAXIS.**—If a guinea-pig is injected with normal horse serum and an interval of 10 to 12 days allowed to elapse,

it will be noted that the second injection is followed by most alarming symptoms, including intense dyspnea and fall of temperature, which frequently end in death. The phenomenon was first described by Auer and Lewis, and is attributed by these investigators to *spasm of the smallest bronchioles*, which virtually causes the suffocation of the animal. *Some toxic substance is set free, which acts upon the plain muscle fiber of the body. In the lungs, it causes spasm of the muscular coat of the bronchi so that air cannot pass out or in, and the animal dies of asphyxiation.*

Corresponding symptoms occur in other animals and may follow the introduction of almost any foreign albumin by parental channels. The first injection sensitizes the animal to subsequent injections and, during the interaction between the antibody and its antigen at the time of the second injection, highly poisonous intermediary products are formed to which the toxic symptoms are in turn due. As the injected animal has evidently become more sensitive to the action of the foreign albumin than it was before the first injection, Richet suggested the term "anaphylaxis" to express this condition of hypersusceptibility. This term has now been generally accepted and the more or less threatening symptoms that follow the second injection are spoken of as the "anaphylactic shock." Stated in the simplest terms, anaphylaxis may be described thus: The protein by-products are produced or set free in toxic quantities, while in the normal animal the process proceeds so slowly that no evident intoxication may result.

*Anaphylaxis and Immunity.*—The relation between antibacterial immunity and anaphylactic intoxication remains essentially the same as outlined by Pfeiffer. While he limited himself to the conception of performed endotoxins, under the newer views, we would consider poisonous substances of bacterial bodies as being intermediary digestion products, and as arising also in part from changes in harmless proteins. There is no contradiction between immunity and anaphylaxis, which is a form of antibody reaction, and, so to speak, an incident in the course of immunization.

**ACTIVE IMMUNIZATION.**—In active immunization, the principal aim is to develop specific antibodies which are of importance in combating and overcoming the infecting organisms and their products. The discovery that active immunity can be produced, in many instances without the production of any disease, through the use of organisms whose virulence has been artificially diminished, or even with organisms that are dead, is one of the greatest triumphs of modern medicine as exemplified in vaccine therapy. Active immunization, to be applicable generally, must be such that it is beneficial if induced after infection has occurred. Pasteur was successful in actively immunizing against rabies, if the immunization was begun before the symptoms and signs of the disease appeared.

The discovery of the possibility of producing immunity artificially we owe to Jenner, who first showed that by vaccinating individuals with smallpox virus, which had been attenuated by passage through cattle, protection against the disease could be secured. Although the causative agent of smallpox was unknown, Pasteur subsequently recognized that the principle of vaccination lies in the production of the disease in an attenuated form. The thought, therefore, suggested itself to him that the same principle might be adapted to the prevention of bacterial diseases also, and by experimentation in this direction he laid the foundation of our modern vaccine therapy, which finds its most immediate expression, so far as human pathology is concerned, in the preventive treatment of rabies and in the prophylactic vaccines against typhoid fever.

**PASSIVE IMMUNIZATION.**—When antibodies, that have been produced in the blood of an actively immunized animal, are introduced into the circulation of another animal, a condition of passive immunity is established. Such a condition may be induced by the use of either antitoxic serum—which neutralizes the bacterial toxin and renders it inert, as illustrated in the use of Tetanus Antitoxin—or antibacterial serum, which acts directly upon the invading organisms and renders them inert or destroys them, as in the use of Antistreptococcus Serum.

*(To be concluded in the next issue.)*

## MARKET HORSES.

BY CARL W. GAY, D.V.M., UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA.

---

The notion seems to have gone abroad that the present administration of affairs agriculturally in New York State is especially interested in horse-breeding. Personally, I never have been on a program where such a large proportion of the allotment was conceded to horses as is done on the present program, and it is all extremely gratifying to one who is interested in this particular line of work, not merely because it gives those of us interested an opportunity to express our views, but for more important reasons.

Prof. Wing has told you that I am more or less in touch with the selling end. I try to keep as well informed as I can, and I admit frankly that the conditions that our dealers complain of most generally are not the fact that there is a dearth of buyers, but the fact that they cannot find the horses to sell. Now I believe there is one very good reason for that. I believe that the activities of the smooth and very competent motor salesmen have created a condition where there is a lack of confidence in the horse business on the purchasing end, and I believe there are a lot of farmers who have quit breeding horses on that account. And I think when a great power like an association of this sort, in a great State, puts its stamp of approval on the horse business, it cannot help have a far-reaching influence in restoring, to a certain extent, this mistaken confidence.

I would like to emphasize the topic, "Market." There is a great difference between horses and producing market horses. It

---

NOTE.—Through the courtesy of Commissioner Calvin J. Huson, of the New York State Department of Agriculture, President of the New York State Breeders' Association, we were furnished with the stenographic report of an extemporaneous address given before that organization at its recent meeting in Rochester, by Carl W. Gay, D. V. M., B. S. A., author of *Productive Horse Husbandry*, Professor of Animal Industry in the School of Veterinary Medicine, University of Pennsylvania, and Director of Horse Breeding, State Live Stock Sanitary Board, Commonwealth of Pennsylvania, for publication; the Commissioner explaining that "this copy had not been submitted to Dr. Gay for correction." We read it through with the very great pleasure that we feel sure it will afford all of our readers, and concluded it did not require any author's corrections; and trust that Prof. Gay will not censure us for publishing it without his having read it. It is brim-full of good arguments and common sense, and suggests an immense fund of information on zoötechny by the speaker.—[Ed.]

is the latter topic I want to discuss. In the first place, what is a market horse? You know Ezra Kendall's statement, "Pigs is Pigs." A good many who raise horses seem to be laboring under the impression that horses is horses. That isn't a fact. A buyer was never as discriminating as he is to-day. On the other hand I believe I am safe in saying there never was a time when the first-class horse sold for more than it does to-day. Most men do not appreciate the fact that there is a distinction between a market horse and any kind of horse. What is a market horse? The very definition of the term "market" makes that point clear. The original market, as you know, was a medium for commodities. And this term "medium" introduces the idea of two parties, one on one side of the medium and the other on the other side, between whom the exchange takes place. They are the producer on the one hand and the seller on the other.

I would like to emphasize especially the importance of the consumer ruling the types of horses for which there is a market. So I say any horse that has a market is a market horse. In other words, it takes two parties to consummate a sale. It doesn't make any difference how highly you value your horse; you have to find somebody else who thinks as you do. A market horse is a horse that has a buyer.

The man who is going to sell market horses must keep himself informed. A man cannot keep himself back and not be informed, for the simple reason that the market conditions are continually changing. I have already tried to show you that they have never been ruled by the consumer—unless the producer keeps in touch with the consumer's demands, he cannot meet them when he gets to market. The producer of market horses should follow up the market.

The question naturally arises, "What sort of horses shall we produce to-day to meet the demand?" I have no patience with the man who thinks that the motor car has put the horse out of business on the one hand, and I have no faith in the statement that the motor has nothing to do with the horse business. It has, and you must take the motor into consideration. The thing for



you to do is to study the proposition and eliminate those with which the competition is most keen. If you follow the market conditions you will find that the commercial draft horse is as good a proposition to-day as he ever was, and so far as we can find out from the men who are using these horses, there is nothing to indicate that this state of affairs won't continue to exist.

I was in a stable just a week ago yesterday, of a Philadelphia concern that works 107 head of horses—the biggest and best draft horses they can buy. They had just returned from Ohio with a carload of 22 head. This concern is working six big five-ton autos. They claim they will never buy another one. They claim it costs them 12 cents a hundred to deliver by truck; it costs 6 cents to deliver by horse. They can make their deliveries, running out 20 or 30 miles, by motors; but for the about-town deliveries they find there is nothing to it. And I could take you down on through the different lines of delivery service, and if we lay aside the matter of vogue—the fact that some people are so distinctive as to demand that their goods shall be delivered by auto—if we can eliminate those people, you will find that in a short radius of three or four miles the efficiency of the horse is far ahead of the motor. There is no reason why these conditions should be reversed. So I say I think it is a good proposition for anyone to breed.

I sometimes take the position, not exactly at variance but a little different from the position of men who are talking horse. Nearly all of the college men have been pushing the draft horse hard. I don't want to retract one bit from the draft horse. I do believe this, that if we make the draft horse the only proposition to the exclusion of the other types, we are not only doing an injustice to the other types themselves, but we are standing in our own light. There are a number of very good reasons why the draft horse is every man's horse—why the average farmer will do far better to bred the draft horse than any other kind of horse. On the other hand, it is a little derogatory to the farmer to say that every farmer is the average farmer. We might say that day labor is the average of all our public employment. It



seems to me there is a very parallel condition in our horse business. I think there are a lot of farmers in this country who are capable of raising something. There is no question but that he is a simpler proposition. Like the hog, he will turn the money with a degree of certainty. But when I see the prices that our Philadelphia buyers are paying the French farmers, I am convinced that if I had a buyer I could raise them at a profit. I know very well there is a good margin of profit left for those Kentucky farmers.

I would not exclude, either, the Virginia type. The saddle horse business was never better than it is at the present day. They tell me the bridle paths of Central Park (New York) are swarming with horses every morning. And there is no reason why there should be any let-up in the demand for saddle horses. As a matter of fact, the motors have contributed to it. The very fact that the motor serves us so conveniently makes getting about so easy and necessitates so little actual exercise is accountable for the fact that so many men have been forced to take exercise, and that exercise is usually in the line of horseback riding.

I do not think, further, we should eliminate the harness horse. Perhaps we should grade down to him. The majority of people buying saddle horses to-day require those that go well in harness. So the combination horse is a good live business proposition.

Then we come down to the show horse. I happened to be down-town yesterday morning, and in one block in Philadelphia I counted three private broughams, a victoria, and a nicely turned-out station wagon, a thing I have not done in quite a while. I have heard a number of men say that there is some sign of a slight come-back in the harness horse. It is generally reported there were more horses in Newport last year than in six or seven years. Perhaps it may not mean very much to us, but nevertheless there is a place to read the signs of the times in horses of that particular type. I was told by a dealer that the sale of harness horses in Boston at the present time is very good. So I don't believe we ought to eliminate the harness horse.

I do think the poorest proposition is the no-account road

horse. His place is so much better taken by the car that unless you have a road horse of the highest type he should not be considered. I have seen them sold very much below what it cost to produce them.

We are safe in saying that as a business proposition we may bank on the draft horse and saddle horse, and then come down to the harness horse for a place.

I may say my business position is unique in that matter. I like to get next to him. I believe thoroughly that the best thing for the inside of a man is the outside of a horse. When Lieutenant Shiverick addressed us this morning and spoke of the hunter, I confess those of us who had our hearts in the right place felt them jump up a few paces in their beats. The horse is such a factor in our sports and pastimes that I don't believe he will ever be eliminated by competition with a motor car.

If these are the horses then that we are to purchase, the question arises, "How shall they be most economically placed on the market?" I think the situation can be summed up in two words, "Breed" and "Feed." I insist upon "Breed" coming first. The breeder furnishes us the raw material; the feeder is the man who furnishes this in rounded shape. You know very well there would be no object, for instance, for your buying gasoline for a 60 horse-power motor if that car's capacity was limited to 40. It would be just as useless to put good feed into a poor horse, that is, to put feed capable of being put in a better horse. Therefore I think that the breeding proposition should always precede the feeding. Dr. Davenport has given us a definition of feeding in his book; Luther Burbank has given us a definition—both of which are very good. But there is a little definition I am going to give you, and it is simply this (I have never submitted this to Dean Davenport, but it seems to me that it can be summed up in this statement): Breeding is the regulation of the progeny through the control of the ancestry, by selection of the parentage. Now I will tell you why I like that definition, and that is because it introduces three factors—the ancestors that go before, the parents which are, that is now, and the progeny which follow

after. Now I emphasize the three because I think breeders are too prone to eliminate the first-named group. That is, we make our beginning here with this sire and dam and we expect to regulate what shall come after. The reason we have got to consider the first-named group, the ancestors, is because the transmission of character is not from the parents to the offspring, but it is from the ancestors, through the parents, to the offspring. There is rather a homely illustration that occurs to me. You are all familiar with the old-fashioned hour-glass. You know that you start the sand in the upper half and in time it all gravitates down into the lower half, and you know that every grain in the upper half will eventually get into the lower half, and you also know that you cannot introduce a grain of sand that was not in the upper half. Label your upper half "Ancestry," the middle part "Parents" and the lower half "Progeny," and you have the proposition as I see it. The characters that are going to be forthcoming in the horses that we are producing are the characters that were in the ancestors from whom the parents came.

Furthermore, here is another principle: No individual manifests in his physical make-up all the inherent qualities which he inherits from his race. On the other hand he may transmit to his offspring any character that he inherits from his race, whether he manifest it in his own physical make-up or not.

Now, what is too often the case? Two men start in the same business and they start out to raise foals. One man perhaps has only the price of a mare and a good stud fee, and he is very careful in his selections, and he mates that mare with the best stallion he can afford to pay the fee of. Now, what are the results? He starts a constructive proposition. Ten years hence and he has a very constructive proposition. You go to the other man, and what do you find? He is out of it, and why? Because the one man appreciated the fact that he had to go back of the individual to which he mated his mare; the other man supposed that if he bought a grand champion stallion and a grand champion mare he could not help but have a grand champion foal. It may be that this grand champion stallion may be the quintessence of merit

of his whole race, so far as first-class capabilities are concerned, and yet he possesses the capability of transmitting characters that he has inherited from the race which are anything but meritorious. And it just happens that in the colts that he sires those latter characters are the ones that will be manifested, rather than the first-mentioned characters. While the other man, perhaps, has mated his horse with a stallion that has not the same show record, because he is an inferior individual; but that man who made the mating has studied his ancestry—he knows that he cannot produce anything but good foals.

Now, gentlemen, the actual application of that proposition is your pure-bred sire. How in the world (I do not care how many ribbons he has won or how many races he has run) can he expect to be a breeding power unto himself when we know that the actual hereditary force of that individual is derived from his ancestors? And by Cotton's law we know that there is a fractional contribution from each ancestor that will determine the character in the progeny. He is an unknown proposition, and it is a mighty expensive experiment to try him out on the mere chance that he may happen to be a good breeder.

Now on the other hand we hear a lot about pedigreed and registered horses. Now, what is pedigree? It is merely a record of the ancestry. Is it sufficient? Absolutely no. It is not the pedigree that suffices; it is the character of the ancestry. Now to be sure it is more to our advantage to find the records against the individual than to find no record at all, because then we are forewarned and because we can go away from it. But unless the pedigree itself is a record of merit, the mere fact that the animal possesses the pedigree is no reason why he should be patronized. Now I say that as a word of warning. We hear a whole lot about the pedigree business. I am no advocate of the grade stallion; on the other hand it is pretty hard to eliminate a grade stallion from a community where he has been siring the colts, on the mere fact that he has not a registration in the association.

Now you have got to breeding your pure-breds to a standard where the poorest pure-bred is better than the best grade. Don't

be misled by this mere matter of register; but go to that record and see what it shows, and unless it shows merit don't have any more to do with him than you would with a horse that had no pedigree at all.

Perhaps that is enough in this matter of breeding. There is one other point that is always important, and that is what we know as preponderancy. Preponderancy is the relative influence of two individuals in determining the character of the offspring. You know, for instance, the offspring will follow the sire—sometimes the sire in certain characters, and sometimes the dam. Or the reverse condition may be true. You breed a mare to one stallion and you will find that she always has colts marked after that stallion. There is a difference in the relative influence of the sire and dam in determining the character of the offspring. Now what makes for preponderancy? In the first place, pure breeding. Purity of breeding eliminates all undesirable characters. Every time you have purity in the ancestor—an individual of the character you desire in the progeny—you are re-enforcing the character which will manifest itself in the progeny. A good pedigree is really a good insurance policy that that character has predominated in the ancestor and is bound to predominate in the progeny.

I don't want to introduce the matter of close breeding here, by using the same individuals as great a number of times as possible. What we want is uniformity in the ancestry. There are no two separate individuals as near alike as the same individual twice; therefore, the more times you can use the same individual the more you purify and intensify and increase this preponderancy. But we find preponderancy is an individual proposition. Two full brothers will have distinctly relative breeding powers. It is an individual personal equation. Sometimes it is very hard to account for, but we do know this, that the individual who has the impressive character, that has a high degree of individuality, that stands up, is likewise an impressive breeder, an impressive personality, which usually contributes to an impressive sire.

Now the matter of feeding. I said we would not think of



taking a low-power automobile, for instance, and feeding it gas enough for higher power. On the other hand we would not think of buying a 60-horse power automobile and then only feed it gas enough to make 40-horse power. It is essential we should keep feeding abreast with the breeding. Dean Davenport has referred to Luther Burbank, a man we go back to. Robert Bakewell followed this system of always keeping the environment that surrounded his animals up to the standard to which he had bred them. We do know that has an influence, and that you cannot raise the one and lower the other—you have got to keep them abreast. Take, for instance, our breeds of wool sheep. Probably that character of producing a fine fleece is more firmly fixed than any other improved character, or in any other class of live stock. It ought to be, therefore, very firmly incorporated into that stock. Take the highest form of improved sheep and put them under the primitive conditions of the range, for instance, where they are subjected to all kinds of privation and you will find in a very few generations they will revert more or less to the primitive type. And so it is in any other class of live-stock work—you have got to keep the conditions that surround your stock up thoroughly to the standard, or else the stock will be pulled back. Therefore it is highly essential that if we produce blood lines that are capable of great things, we see to it that those things are given an opportunity to develop by our system of feeding and management (and in their feeding I would include everything that pertains to management), or we never can realize in full on that particular animal.

There are one or two or three phases I would like to dwell on. The first is the necessity of ample feeding. You do know (most of you, I presume) that about one-half of a normal full ration is utilized by the animal in simply maintaining himself. Now of course if it is a dairy cow you are keeping that would mean she is simply kept going out of half of that ration. If you are talking about a work-horse it means that he is simply maintained in normal health. If you are talking about a growing animal, it means that that foal can just hold his own—that there is no surplus left



to grow on. Now the important thing to remember is this: In the first place, this ration is utilized for two things: In the first place for maintenance; in the second place, production. The important thing is this, that the animal never goes half way with you. The relation of the part of the ration that is utilized for maintenance to the part of the ration that is utilized for production is exactly the same as the relation of a first mortgage to a second mortgage. In other words, that animal will satisfy maintenance requirements before he will use a pound of his ration for production. Now when you find men feeding colts half a ration—just enough to keep them from going back—see what they are depriving that colt of. A colt has so many days to grow in, and the thing for the feeder to do is to get the maximum growth every day he lives. You can't catch up. If a colt goes through one winter, for instance, you will find as a rule he is a stunted colt; he never can make up what he has lost in that short time. So the object should be to bear in mind that the colt should have a full ration in order to make his growth, and he must then have that ration every day in order to utilize every growing moment he has.

As we said this morning, the size is a factor nowadays in market horses. They want their hunters big, and every pound you get on a draft horse adds to the actual price of that horse. So we cannot afford in any case to lose a minute of time that should be utilized in attaining the maximum weight.

So far as feeding is concerned, I want to refer to the draft horse. It has been contended that one good reason we cannot raise as good draft horses in America as they can in France is the fact that we won't feed. I find, especially in the East, that the notion is to feed all horses alike. I know a man near my home who has a draft stallion and a road horse in the same barn, cared for by the same man and absolutely in the same manner, and they are getting so they look exactly alike—his draft horse looks like his road horse. The draft horse is a different type—as a grand piano is different from an upright piano. It is a distinct pattern. Now this pattern consists of lines and dimensions that require a cer-

tain amount of fat to carry them out. Do you recall, in your experience, an acquaintance who perhaps has been normally a fat man and who has lost weight through a fit of sickness? Now he may still weigh as much as you do, but he looks thinner. Why? Because his whole proportion was intended to be filled out. You know there is no thinner animal on the farm than a thin hog; he is ten times thinner than the most scrawny cow. A spare form is in keeping with the cow, but a hog's lines are all round and full, and when you take that away you have destroyed the symmetry. I am pleading for fat on the draft horse. But I believe that too many, especially Eastern men, labor under the impression that draft horses are excessively fat when they are not. Now it is perfectly normal for them to be a whole lot fatter than any other horse you have to do with. When you think he is too fat to breed or too fat to work, and you let him down you will find it will be a detriment to that horse. I say it can be overdone—it is normal for that horse to carry a certain degree of fat, and it is normal for that horse to be filled out in his form, and in order to do that he has to have a lot of rough stuff. He not only has to have an abundance of everything, but the character of his ration has to be different and you have got to do it with rough stuff. So don't think that the draft horse's condition is a condition of reducing weight. He has got to be a great big horse than can eat a whole lot of feed and then utilize the feed. The draft horse works all the day. I contend the fat on his back is the most normal condition. There is absolutely no reason why these draft horses should not be fed out to a condition of fullness, and it applies especially to the colts. You understand that if you want to get any colt down to the best form you have got to feed him fully.

So far as the specific feeds are concerned, there is one that I would like to refer to, and that is perhaps the most common—the timothy hay. Now it is a fact that timothy hay has a physiological effect on a horse. It acts as a feeler; it has a mechanical action; it acts as a mechanical feeler that keeps him hard in a way

that no other ration does. To that extent, perhaps, the price is justifiable. You must remember this: If you are going to feed timothy hay you must feed something else for the horse to live on. If you are going to confine your grain ration to hay, make it something else besides timothy.

There is one other thing that applies to the feeding of horses in general, and that is our feeding standards. I want to say this about the standards: We have to have them. It is true our American experience has demonstrated that most of the German standards are a little high. And as protein is the most expensive part of the ration, it is really the constituent upon which the value of the ration is based. The lower we can cut down the protein, the less the cost of the maintenance. These standards, then, are standards, take them as such. I believe the man who feeds altogether by these standards, by rule of thumb, is losing the art. I consider that feeding is an art and not a science. You know the scientist does things absolutely; the chemist gets things to the fourth or fifth decimal of accuracy; the man who does mechanical drawing does it with a compass and measurements that makes it absolutely correct. Now on the other hand the artist is furnished his material and everything is approximate, but it depends upon his own ingenuity what his results will be. I believe we ought to cultivate, more than we do cultivate, the idea of artistic feeding. By that I mean simply this: Don't depend too much upon any feeding standards; don't depend on anybody's rules.

You often go through a stable and you find the name of the animal, the age and some other data that applies to her, and what she is getting. Now any boy could go in there and feed those cows—all he has got to do is to get the stuff and throw it in. I think the way to feed those cows or horses is to have a man of sufficient intelligence or horse-sense so that he don't need a man in the office in a swivel chair to tell him what to feed. You cannot figure it in the abstract; you cannot say that this cow gives so many quarts of milk—one cow will excel in one way and one another. Here is a horse that is doing so much work. The man who studies the horse knows that no two horses are alike—that

they have individualities that require consideration from the feeder, and the man who would be an intelligent feeder is the man who can appreciate those things and supply them as demanded. One of the most forcible arguments along this line that I ever heard was in Iowa. The man who had just fitted that grand champion steer was called before the students to tell how he fed it. This matter of feeding balanced rations and all that stuff was fresh in their minds. They began to quiz him. He looked at them rather blankly for a moment and then said, "I did not balance his ration—the steer balanced his own ration." He could go in that stable and I believe he could tell you the minute he stepped in what he needed. The way he consumed his grain, the consistency and the color and the odor of the excrement, and all such things as that, told the story and I haven't a doubt that if an analysis had been taken of the ration that Sam Johnson was feeding that steer, it would have been found pretty nearly accurate, corresponding to the requirements of the so-called German feeding standards. And yet this was the result of his own observation rather than any hard and fast rule that he was following.

Now in order to make my little rhyme I might add another word, and this might be "Lead." You must remember that most market horses are sold on the halter, or at least that is the way they are shown first. The draft horses are sold that way very largely. Of course your saddle horses are usually under saddle, but the first look is usually shown in hand. Now it is an actual fact that the first impression you get of an animal is a lasting impression. If you had a chance to see him under proper conditions, you will find that that is the impression that ought to stand by you. If you get a little fickle and change your mind, nine times out of ten you will come around to your original opinion. It is absolutely legitimate to present a horse with his best foot forward, as it were—create the best impression of which that horse is capable. It is only fair to the horse and to you. In order to do this a horse has got to be in a position to lead. Many and many a time you will hear a man say, "This horse

never makes any show on the lead." As a matter of fact, the buyer has formed his impression nevertheless, and that impression may have caused a little prejudice that he never will get away from. Therefore I think that men who are producing market horses should feed and breed along these lines, and then give this primary instruction. I do not think that a man, unless he is capable of going all the way through, should do very much with schooling. You will find, as a rule, that men will pay as much for a green horse absolutely in the rough because a little attempt at schooling him by an incompetent man will spoil him. And when it comes down to a final decision the question is, "What can he do?" Many an ill-shaped horse has been passed and accepted by a prospective buyer over a horse that has been twice as good-looking as he—he did his work in a more efficient manner. And you will find that the thoroughly schooled horse is the only horse that can give satisfaction. Therefore unless you are competent to go all the way through, don't attempt to do any of it, but leave that to the man who is more competent.

I believe, to summarize, we may say this: In the first place it is essential that a man should read. I am going to leave these words with you: READ, BREED, FEED, LEAD, and if you follow that practice I also believe we are safe in assuming that we could append the final word, SUCCEED. (Applause.)

---

GIVE THE HORSE A CHANCE was the title of a folder 11 inches long and 4½ inches wide, which lay beside each man's plate at the New Jersey Road Drivers' Association dinner, March 12. The folder contained a description, by Dr. James McDonough, of the five-calked shoe advocated by him to give the proper side support to the hind limb of a horse. It was illustrated by five clear cuts, and the descriptive matter, including the report of the committee of veterinarians appointed by the V. M. A. of N. J. to examine the limbs of horses (published in the REVIEW last summer), was clear and concise; and in the hands of the many horse lovers present should do much good in advancing the adoption of that most sensible shoe.



## THE DIAGNOSIS OF DOURINE BY COMPLEMENT-FIXATION.\*

BY JOHN R. MOHLER, ADOLPH EICHORN AND JOHN M. BUCK, PATHOLOGICAL  
DIVISION, B. A. I., WASHINGTON, D. C.

---

Dourine is a specific infectious disease affecting under natural conditions only the horse and the ass, transmitted from animal to animal by the act of copulation, and due to a single-celled animal parasite or protozoan, the *Trypanosoma equiperdum*. It is characterized by an irregular incubation period, the confinement of the first symptoms to the genital tract, the chronic course which it runs, and by finally producing complete paralysis of the posterior extremities, with a fatal termination in from six months to two years.

In the United States the disease was first suspected in 1885 and recognized in 1886 by Dr. W. L. Williams, who was then a practitioner at Bloomington, Ill. The State of Illinois took hold of the outbreak and as a result of rigid prophylactic measures the disease was eradicated from the state in 1888, but not before an affected stallion had been shipped to Gordon, Nebr., thereby starting up a new center of infection in that locality.

In 1892 dourine was again brought into public notice by the appearance of an outbreak among the breeding horses of north-western Nebraska, the history of which suggested that it originated with this Gordon stallion. After an expenditure of about \$5,500 by the Bureau of Animal Industry the disease was considered to have been eradicated from that section of the country. Five years later the infection again made its appearance in the same portion of Nebraska, and early in 1899 the bureau again began the work of eradication. Many inspections were made, and those animals which were found diseased were purchased and killed. Many obstacles were encountered and the disease evidently kept smoldering during 1900.

---

\* Presented to the fiftieth anniversary meeting of the American Veterinary Medical Association at New York, September, 1913.



In 1901 the infection appeared with increased vigor, this time in the Pine Ridge and Rosebud Indian Reservations in South Dakota, in addition to northern Nebraska, and more stringent measures were immediately inaugurated to control the spread of the disease. However, eradication in this region was extremely difficult, owing to the wild condition of the country as well as of the horses, and from the fact that many horse owners would try to conceal from the inspectors animals which they knew to be affected with the disease. In 1906 the last suspicious cases of dourine were destroyed in South Dakota.

In the meantime during the year 1903 dourine was reported in Van Buren County, Iowa, and successful steps were immediately taken to stamp it out. No connection could be established between this outbreak and that in Nebraska, but it was quite definitely determined that an imported Percheron stallion purchased by a company of farmers was responsible for its appearance.

Another outbreak of dourine was discovered in Taylor County, Iowa, in 1911. The diseased animals, together with all exposed stallions and mares, were immediately quarantined by the state. Those showing lesions of the disease and those exposed horses that reacted to the complement-fixation test were purchased by the government and destroyed. It is now believed that the infection is entirely eradicated from Iowa. The source from which this center of infection was derived is only a matter of conjecture, but there is apparently no connection between this and any of the previous outbreaks. No authentic information as to the origin of the outbreak was discovered, but all cases lead back to a Percheron stallion, which was imported in 1909 and brought direct to Lenox, Iowa.

Early in July, 1912, the state veterinarian of Montana reported several suspicious cases of dourine in eastern Montana, and forwarded blood sera from the suspected animals for the complement-fixation test. All but one sample gave positive results, thus establishing a new center of infection of dourine. From present indications this outbreak appears to be the most

extensive of any of the previous outbreaks, involving also two Indian reservations in North and South Dakota, but a force of 12 federal veterinarians assisted by state representatives is at work on the disease, and the infection is well under control.

The difficulty of diagnosing chronic and latent forms of dourine is generally recognized, and owing to this fact the control and eradication of this disease in horses has been of slow progress and sometimes ineffective. In such outbreaks it has been the custom to trace the disease as far as possible to its origin, and then keep under observation all mares and stallions which directly or indirectly have been exposed to the disease. At the same time animals which show clinical evidences of the affection are destroyed without delay and by this means several of the outbreaks which have occurred in the United States have been checked and eradicated.

The microscopical demonstration of the *Trypanosoma equiperdum* in affected horses is very frequently unsuccessful, although our more recent experience proves that they may occasionally be found in the serous exudate of the plaques and also in the fluid of the oedematous swellings of the genital organs in the stallions as well as in the mares.

Of course this procedure of diagnosis can be attempted only when the disease occurs in farming localities where the animals can be readily observed and examined as desired. On the other hand, in the present outbreak in Montana and adjoining states the conditions make the diagnosis by the demonstration of trypanosomes impossible, and likewise animal inoculations cannot be satisfactorily utilized for this purpose. Horses in that locality are bred under range conditions; they run wild and a roundup takes place only once a year. The difficulty of an examination even clinically of such animals is obvious, since they have not been broken to the halter and are troublesome to handle.

Our experience with the disease in Montana showed that only a limited number of animals were clinically infected. Nevertheless association of all the animals without any restriction in the breeding periods indicated that a larger number of animals

would be found infected, which as a matter of fact has been proven by subsequent tests, as shown below.

Owing to the fact that until the last few years the eradication of dourine in this country was supposed to have been complete the disease has received only slight attention as compared with other menacing diseases of our domesticated animals. It was not until the outbreak in the State of Iowa in 1911 that the necessity for devising a method of diagnosing this infection began to be fully realized. The value of being able to detect the latent as well as verify the clinical cases became apparent. Otherwise the necessity existed of maintaining a long-continued quarantine in those sections of the country where cases have been discovered. While little difficulty has been experienced in recognizing the advanced cases, a clinical examination alone naturally permitted many infected animals to escape detection, only to constitute a menace to the further spread of the disease until the appearance of symptoms justified the diagnosis.

Inasmuch as the complement-fixation method of diagnosis has been employed with such gratifying results in connection with numerous other diseases the possibility of applying this method to dourine naturally suggested itself and steps were therefore immediately taken to determine the feasibility of its application to this disease.

It was very early discovered that the problem of preparing a satisfactory antigen was to offer considerable difficulty.

Efforts were primarily directed toward utilizing for this purpose the different organs of those horses that had succumbed to the disease. Several of the clinical cases were shipped from Iowa to the Bethesda Experiment Station during the outbreak referred to above, in order that a more complete observation might be made of the development of the disease, and material might at the same time be available for antigen preparation.

As these animals died from time to time certain tissues were obtained which it was suspected might furnish the desired results, but although shake extracts of the spleens, livers, kidneys and bone marrow, as well as alcoholic and acetone preparations were

employed under various conditions, the results were rather of a discouraging nature.

Subsequent to this time there came under our observation publications by numerous investigators who had given this subject consideration. It will suffice to mention the publications of Landsteiner, Müller and Pötzl, Levaditi and Yamanouchi, Hartoch and Yakimoff, Schilling, Claus and Hösslin, Citron, Weber, Manteufel, Manteufel and Woithe, Zwick and Fischer. The results in these instances appeared to have been unsatisfactory, which was also the case in the extensive work on the diagnosis of dourine by the Wassermann method by Trajan Pavlosevici, as he concluded that while anti-bodies can be demonstrated by this method in laboratory animals infected by trypanosomes, the method cannot be utilized in stallions affected with dourine.

Later Winkler and Wyschelessky, Mohler and also Watson in their work on complement-fixation as an aid in the recognition of trypanosomiasis indicated the good results obtained in the diagnosis of dourine. Likewise Mattes in his work on the agglutination of trypanosomes obtained gratifying results, while Brown also concludes that complement-fixation can be utilized for the diagnosis of trypanosome affections.

In the recorded publications it was observed that the more promising results were obtained by those who employed suspensions of pure trypanosomes. The organ extracts and other preparations of antigone generally used for this purpose proved unreliable. The procedure as recommended by various workers in obtaining an antigen from pure trypanosomes and using such a suspension as the antigen has also been tried by the writers with uniformly good results. The practical application of this procedure, however, would be very laborious and require a great deal of time, especially in cases where a large number of horses have to be tested by this method. Accordingly, it was deemed advisable to devise a means by which an antigen could be prepared which would give similarly good results but would not require such delicate and laborious technique. In place of the specific trypanosome of dourine being utilized the writers selected

the surra organism, as it had been previously ascertained by several investigators that the reaction obtained was not absolutely specific for any one trypanosome infection, but was rather of a group nature.

As dourine is the only known trypanosome affection of horses existing in this country, the value of even a group reaction was immediately appreciated and attention was directed to the carrying out of this idea in our diagnostic work.

In place of preparing suspensions of the trypanosomes, however, an antigen was made of the blood and macerated spleens of rats killed at the height of surra infection. This was placed in a bottle containing glass beads and shaken for six hours filtered through gauze and carbolized. The results from this antigen prove dsatisfactory and was used repeatedly on the blood of the dourine horses that were left of the Iowa shipment.

The smallest quantity of the serum which gave a positive reaction with the antigen was .05 c.c., while the various comparative tests indicated that even a fixation in .2 c.c. of serum is sufficient for diagnostic purposes.

Sera from normal animals, also those affected with various other diseases, failed to give a reaction.

This antigen proved active on 10 consecutive days, but failed to produce fixation of complement on substequent tests.

Later attempts by the same procedure also resulted less satisfactorily, and it was therefore deemed advisable to try other methods in order to procure an antigen of more uniform action.

The following procedure was next employed:

After successive examinations of the blood of a dog infected with surra, about 200 c.c. were drawn from the jugular vein when the microscopic examination revealed a tremendous infestation with the parasite. The blood was drawn into a one per cent. potassium citrate solution into large centrifuge tubes of 100 c.c. capacity. A quantity of potassium citrate solution was used, equal to the amount of blood drawn into each tube, and 0.5 gram of saponin was added to each tube, in order to dissolve the red blood corpuscles. After a thorough shaking and complete hemo-



lysis had taken place it was centrifuged for 30 minutes at 2,500 evolutions and the supernatant fluid was siphoned off. The residue which was of an opaque color and which consisted principally of trypanosomes was then thoroughly mixed and shaken up with salt solution when it was again placed in the centrifuge; this washing was repeated three times. After the last washing the thrown-down opaque mass was emulsified with 50 c.c. salt solution and titered as to its merits as an antigen for dourine tests. The results were highly satisfactory and the titer was established at  $\frac{1}{2}$  c.c. of this emulsion per tube. The disadvantage was soon apparent on account of the difficulty in the preparation of this antigen and also the small quantity which was obtainable from a single bleeding of a dog.

In July, 1912, the above-mentioned outbreak of dourine was discovered in the State of Montana.

Several samples of blood sera from clinical cases were forwarded by the state authorities to the pathological laboratory for verification. Positive reactions were obtained in numerous instances with antigens thus prepared, establishing conclusively the presence of the disease in this state, as well as suggesting the possibilities of the test as a means of its eradication.

It was not long before discovery was made that the disease was quite widely spread in Montana owing to the previous failure in its recognition.

In an endeavor to comply with the request of the state authorities to diagnose a large number of animals, it was soon apparent that a different method would necessarily have to be devised in order to make the desired progress.

It was at this time that our present method of preparing antigen was first employed, which is as follows:

Various organs from rats just dead from surra were tried out in a fresh and preserved state, and the results which were obtained from the fresh suspension of the macerated spleen of a rat just dead from surra gave the most promising results. In order to establish whether such an antigen would constantly or at least in most instances give the results desired, it was repeat-



edly tested on positive serum of horses affected with dourine, as well as on horse serum known to be free from immune bodies of dourine. After repeated tests on clinically affected dourine horses showed the antigen to be uniformly constant in its action, the procedure of diagnosing dourine by this method was definitely adopted.

PREPARATION OF ANTIGEN.—Gray or white rats are infected with surra by injection of 0.2 c.c. of blood from a rabbit infected with surra. Since tests have to be made every day to keep up with the large number of cases submitted and as the antigen proves effective only when prepared fresh, it was arranged that at least two rats should die daily with the disease. When the rats appeared to be at the point of death late in the afternoon it was found that placing such rats in the ice chest until they die furnished a better antigen than when they have died in the cage during the night and have to be used the following morning.

The spleen from the rats is removed, placed in a mortar, and ground up with a small amount of salt solution to a pulpy mass. From time to time more of the salt solution is added and the suspension thus obtained is filtered twice through a double layer of gauze into a test tube. The quantity of the suspension from each spleen is made up to 40 c.c. by dilution with salt solution.

This suspension constitutes the antigen for the tests of the suspected dourine sera. Dr. Traum who was temporarily assigned to this work found that when the suspension was titered against a known positive and negative case of sera in graduated quantities, the best results were obtained, and this method has since been adopted. The quantity of antigen employed is double the amount necessary to produce complete fixation with positive serum. The table on the following page gives the method of titration of the antigen as practiced.

Half the quantity of antigen which in the negative serum does not inhibit hemolysis, providing this quantity is at least double the amount necessary to produce complete fixation with the positive serum, indicates the titer of the antigen. Thus for instance if tubes with negative serum 1, 2, 3 and 4 show com-

plete hemolysis and 5 and 6 slight inhibition, and at the same time tubes with positive serum 6, 5, 4, 3 and 2 show complete fixation and 1 partial fixation, the quantity of antigen for the test proper would be 0.2 c.c. of the antigen.

TABLE SHOWING METHOD OF TITRATION OF ARTIGEN FOR THE COMPLEMENT-FIXATION TEST IN DOURINE.

*Positive Serum.*  
For one hour in incubator.

Tube.	1. NaCl Solution, c.c.	Serum. c.c.	2. Antigen. c.c.	3. Complement. c.c.	4. Hemolytic Serum. c.c.	5. Blood Corpuscles, c.c.
1	2	0.15	0.05	1	1	1
2	2	0.15	0.1	1	1	1
3	2	0.15	0.15	1	1	1
4	2	0.15	0.2	1	1	1
5	2	0.15	0.25	1	1	1
6	2	0.15	0.3	1	1	1

*Negative Serum.*  
For one hour in incubator.

1	2	0.15	0.1	1	1	1
2	2	0.15	0.2	1	1	1
3	2	0.15	0.3	1	1	1
4	2	0.15	0.4	1	1	1
5	2	0.15	0.5	1	1	1
6	2	0.15	0.6	1	1	1

1. 0.85 per cent. NaCl solution.
2. Suspension of macerated spleen from rat.
3. The determined smallest quantity established by titration.
4. Sensitized rabbit serum.
5. 5 per cent. suspension of sheep-red blood corpuscles.

Occasionally the antigen does not prove satisfactory for the test and has to be discarded. In these cases the fixation in all tubes is apparently due to the excessive amount of proteids from the spleen. Experience has shown that the excessively large spleens contribute such an antigen. This, of course, is indicated by the titration undertaken prior to the regular test. At other times it was found that the antigen proved satisfactory the following day when it was allowed to stand in the test tube over night and the supernatant fluid drawn off for the antigen. This is then retitered and the titer established in accordance with the results of the test.

THE COMPLEMENT-FIXATION TEST.—The test proper for the diagnosis of dourine is carried out in a similar manner to that practiced for the diagnosis of glanders.\*

\*A more detailed description of the technique of this method as applied to glanders will be found in Bulletin 136 of the Bureau of Animal Industry, by Mohler and Eichhorn, under "The Diagnosis of Glanders by the Complement-Fixation."

The hemolytic system consists of sensitized rabbit serum, serum from a guinea pig and a 5 per cent suspension of washed sheep corpuscles.

The serum to be tested is of course inactivated for one-half hour at 56° C. and is used in the tests in quantities of 0.15 c.c., since it has been found that fixation in this quantity is obtained only with sera of horses affected with dourine. Tests to determine the smallest quantity of serum of dourine horses which will give a fixation showed that in several instances even 0.02 c.c. of serum was sufficient to give a complete fixation. The complement from the guinea pig is always titered previous to the test, as it is absolutely necessary to use the exact amount of complement to obtain the best results, since a deficiency or an excess of complement would interfere greatly with the reaction. In the numerous cases which have been tested the results were almost invariably definite, and only on a very few occasions was it found necessary to make retests on cases which appeared atypical. The reaction is always very marked and in our work only a complement-fixation with the quantity of serum mentioned is recognized as a positive reaction. It is only natural that in the tests the usual number of checks should be employed in order to insure reliable results.

Since the testing has been undertaken by the described method 8,657 samples have been examined from Montana, and the Cheyenne and Standing Rock Indian Reservation in North and South Dakota. Of these, 1,076 gave positive reactions, which appears to be a very large proportion, but when it is remembered that these animals were kept under range conditions without sanitary or veterinary control and also that before the disease was recognized as dourine it had been diagnosed for a long period as some other affection, it will be recognized that the opportunity for the spread of the disease was ideal.

With the present system of diagnosis by which even the latent cases can be determined, it is hoped quickly to eradicate the disease. All the horses in the infected localities will be submitted to the complement-fixation test, and by co-operation with the

state authorities means will be devised to dispose of the affected animals in such a way as to make further spread of the disease impossible. The animals which were destroyed as a result of the disease in the above-named localities and which were diagnosed by the complement-fixation test showed in most instances some lesions indicative of the disease. In some of the cases there were no indications of a progressive paralysis, but the lesions existing in the genital organs of either the male or female were sufficient for confirmation of the diagnosis by the complement-fixation test.

It is therefore evident that the diagnosis of trypanosome infections by the complement-fixation test is of very great importance, especially in countries where only one of these protozoan diseases exists. By this means it is possible to determine all infected animals within a short time, and dispose of them by methods best suited for the control of the infection. Furthermore the introduction of the disease into any country could also be guarded against by a compulsory requirement of this test on all horses imported from countries in which dourine is present.

#### BIBLIOGRAPHY.

- Braun, H. Über das Verhalten der trypanosomen antikörpern gegenüber. Centralblatt für bakteriologie, etc., Abteilung I, Referate, band 54. Beilage, p. 11-16. Jena, 1912.
- Citron, Julius. Die komplementbindungsversuche bei erkrankungen mit bekannten, aber nicht züchtbaren erregern. Kraus, Rudolf, and Levaditi, C.: Handbuch der technik und methodik der immunitätsforschung, band II, p. 1112. Jena, 1909.
- Hartoch, O., and Yakimoff, W. Zur frage der komplementbindung bei experimentellen trypanosomen. Wiener klinische wochenschrift, jahrgang 21, no. 21, p. 753-755. Wien, May 21, 1908.
- Landsteiner, K., Müller, R., and Pötzl, O. Über komplementbindungsreaktionen mit dem serum von dourinetieren. Wiener klinische wochenschrift, jahrgang 20, no. 46, p. 1421-1422. Wien, Nov. 14, 1907.
- Zur frage der komplementbindungsreaktionen bei syphilis. Wiener klinische wochenschrift, jahrgang 20, no. 50, p. 1565-1567. Wien, Dec. 12, 1907.
- Levaditi, C., and Yamanouchi, T. La reaction des lipoides dans les trypanosomiasis et les spirillosis expérimentales. Bulletin de la société pathologie exotique, tome 1, no. 3 p. 140-144. Paris, 1908.
- Manteufel. Untersuchungen über spezifische agglomeration und komplementbindung bei trypanosomen und spirochaeten. Arbeiten aus dem kaiserlichen gesundheitsamte, band 28, heft 1, p. 172-197. Berlin, March, 1908.
- Manteufel and Woithe. Über die diagnostische bedeutung der komplementbindungsreaktion bei trypanosomeninfektionen. Arbeiten aus dem kaiserlichen gesundheitsamte, band 29, heft 2, p. 452-477. Berlin, 1908.
- Mattes, Wilhelm. Agglutinationserscheinungen bei den trypanosomen der schlafkrankheit, nagana, dourine, beschäseuche und des Kongoküstenfiebers. Centralblatt für bakteriologie, etc., abteilung I, originale, band 65, heft 6-7, p. 538-573. Jena Aug. 10, 1912.
- Mohler, John R. Dourine. Report of Committee on Diseases. Proceedings of the American Veterinary Medical Association, 1912, pp. 99-115. Lansing, Mich.
- Pavlosévici. Recherches sur l'application de la méthode Wassermann, dans le diagnostic de la dourine. Archiva veterinara, vol. 7, no. 2, p. 69-82. Bucharest, March-April, 1910.

Schilling, Claus, and Hösslin, V. Trypanosomen-infektion und komplementbindung. Deutsche medizinische wochenschrift, jahrgang 34, no. 33, p. 1422-1425. Berlin, Aug. 13, 1908.

Watson, E. A. The serum reactions and serum diagnosis of dourine. Proceedings of the American Veterinary Medical Association, 1912, pp. 411-420. Lansing, 1913.

Weber, Hans. Über immunisirungs- und behandlungsversuche bei trypanosomen-krankheiten. Zeitschrift für experimentelle pathologie und therapie, band 4, heft 2, p. 576-626. Berlin, 1907.

Winkler and Wyschelessky, S. Die agglutination, präzipitation und komplementbindung als hilfsmittel zum nachweis der trypanosomenkrankheiten, im besonderen der beschälseuche. Berliner tierärztliche wochenschrift, jahrgang 27, no. 51, p. 933-936. Berlin, Dec. 21, 1911.

Zwick and Fischer. Untersuchungen über die beschälseuche. Arbeiten aus dem kaiserlichen gesundheitsamte, band 36, heft 1, p. 1-103. Berlin, 1910.

DR. S. J. WALKLEY WRITES FROM WASHINGTON, D. C.—Under date of March 14, a communication was received at the REVIEW office from Secretary Walkley of the NATIONAL ASSOCIATION BUREAU OF ANIMAL INDUSTRY EMPLOYEES, where he was at work in the interest of the Lobeck Bill, H. R. 9292. The doctor states that in an interview with the Chief of the B. A. I., he was convinced that there was no opposition to the movement. In fact, he had advised inspectors in charge throughout the country who had consulted him to affiliate with the movement, and expressed the hope that the efforts of the organization would result in mutual benefit to the employees and the department. Dr. Walkley stated that at that writing no definite date had been set for the hearing on House Bill No. 9292, and he wished to offer a final appeal to all veterinarians and veterinary students to use all possible influence in having publicity given the legislative work on the Lobeck Bill in their local newspapers. Upon almost every Congressman's desk, he states, he noticed copies of their home papers.

AUTOTHERAPY NIGHT was the announcement on a postal issued just prior to the March meeting of the Veterinary Medical Association of New York City; and we have since been informed that many medical men graced the meeting with their presence, in addition to the large attendance of veterinarians, and that that interesting and truly wonderful method of treating disease was thoroughly discussed by an enthusiastic gathering.

MARKET HORSES, by CARL W. GAY, is the title of an article on page 30 of the present issue. This commonsense talk by Dr. Gay before the members of the New York State Breeder's Association is just what we need by veterinarians throughout the country.



## A PRELIMINARY REPORT ON THE VALUE OF LEUCOCYTIC EXTRACT FROM A THERAPEUTIC STANDPOINT.\*

BY R. A. ARCHIBALD, OAKLAND, CAL.

Subsequent to the publication of an article in the *Journal of Medical Research*, Vol. 24, No. 3, June, 1911, by Hans Zinsser, Geo. W. McCoy, and C. W. Chapin, on the protective influence of leucocytic substances upon experimental plague, the writer conceived the idea that if leucocytic substances could be obtained in sufficient quantities to be not only therapeutically practical, but commercially possible, that a decided step forward would be made in the biological treatment of infectious diseases.

Prior to the publication of the above mentioned article, Hiss and Zinsser, *Journal of Medical Research*, Vol. 14, No. 3, 1908, and Vol. 15, No. 3, 1909, demonstrated in an experimental way that leucocytic extracts could be prepared by injecting into the pleural cavities of rabbits, ten c.c. of a meat extract broth containing three per cent. starch and five per cent. aleuronat. At the end of 24 hours, a copious and very cellular exudate will have accumulated in the pleural cavities. This is obtained by killing the rabbits and removing the exudate which is immediately centrifuged. The leucocytic sediment is diluted with twenty volumes of sterile distilled water to one volume of sediment, and autodigestion is permitted to take place in the incubator, following which the extract is stored in a refrigerator until used.

In experimenting with animals, Hiss and Zinsser observed that pneumococcus, staphylococcus, menenococcus, typhoid, dysentery and cholera infections in rabbits and guinea pigs were profoundly modified when injections of leucocytic extracts prepared as above described were administered intraperitoneally or subcutaneously, during the course of the infection. In many cases, animals were saved by these substances from infections which

\* Presented to the fiftieth anniversary meeting of the American Veterinary Medical Association, New York, September, 1913.



proved rapidly fatal in untreated control animals, even when the protective injections were made as late as 24 hours after intravenous infections.

In applying this method of treatment by subcutaneous injections to infections in man, Hiss and Zinsser observed distinctly beneficial results in cases of epidemic cerebro-spinal meningitis, lobar pneumonia, staphylococcus infections and erysipelas.

Hiss and Zinsser's idea was that injecting into infected subjects the substances composing the cells usually found in exudates in a diffusible form, that such substances would, following absorption, relieve or stimulate the fatigued leucocytes.

Later, Zinsser, assisted by McCoy and Chapin, conducted a series of experiments on white rats, with a view to ascertaining whether substances obtained from normal leucocytes would modify in any way the course of experimental infection with the bacillus pestis. As the result of their experiments these workers found that the use of emulsions of normal leucocytic substances obtained from rabbits exerted a distinctly protective influence even when such substances were administered 24 hours after the inoculation of rabbits with virulent plague organisms.

While the results obtained by the above mentioned investigators were intensely interesting from a practical standpoint, their method of obtaining leucocytic substances must be considered as having little value, as the injection of a proteid substance into the plural cavities of rabbits yields such a small amount of leucocytic substance as to rob it of much value from a therapeutic standpoint.

For the purpose of throwing some light upon the nature of bactericidal substances in leucocytic extract, Wilfred H. Manwaring, *Journal of Experimental Medicine*, Vol. 16, No. 3, September, 1912, conducted a series of experiments. Manwaring started out with the assumption that there exists powerful bacteriolytic substances within the cytoplasm of certain body cells, and that this fact is amply demonstrated in the automatic sterilization of old abscess cavities and the sterilizing of the pneumonic lung, which is assumed to be due to the liberation of endolysins,

the result of cellular disintegration. His work was with a view of extending the present knowledge of these lytic substances, and to determine the approximate chemical nature of the bacteriolytic substances that might be extracted from leucocytes.

In obtaining leucocytes for these experiments, Manwaring at first followed the practice of injecting rabbits with a five per cent. suspension of aleuronat into the plural cavity, but he found that he was decidedly handicapped in his study of the nature of the extract so obtained on account of the small amount of substances available. By injecting aleuronat into the plural cavity of a rabbit, one seldom secured more than a single cubic centimeter of leucocytes. In order to overcome this obstacle, he selected the horse for the continuation of his work. His treatment consisted in injecting into the plural cavity of the horse from three hundred to five hundred c.c. of a five per cent. aleuronat in two per cent. starch paste solution, the starch being added to aid in holding the aleuronat in suspension. Following such an injection there are usually found from one to three litres of pleural exudate daily for the first week, the yield then decreases, and usually ceases entirely about the 15th day. The exudate contains about five per cent. of leucocytes. Manwaring's experiments show that while the extraction of a bacterial substance from leucocytes is attended with considerable difficulty, still he was enabled to demonstrate that it could be done by carefully observed technique. Manwaring, while not being able to arrive at a final conclusion as to the nature of the bactericidal substances in leucocytic extracts, did reach the logical conclusion as the results of his investigations, that the bactericidal substance present is probably an enzyme.

About this time Jobbling and Strouse, *Journal of Experimental Medicine*, Vol. 16, No. 3, September, 1912, published an article on their "Studies of the Extent of Leucocytic Proteolysis." These investigators used in their experiments leucocytes obtained from inflammatory pus, also fresh dog leucocytes obtained by plural cavity injections of aleuronat.

Their conclusions were that the proteolytic action of leuco-

cytes is a readily established fact, and that this action depends upon the presence of two proteases, one capable of acting in an alkaline, and the other in an acid medium, with possibly a creptic ferment which is apparently capable of acting in either an acid or alkaline medium.

We could, did circumstances permit, go on and recount the results obtained by other investigators, showing that leucocytes do contain intracellular substances which possess poleolytic properties, but from a study of the question from a therapeutic standpoint the result obtained by later investigators, and the personal work of the writer and his co-workers indicate that the proteolytic action brought about by the parenteral injection of leucocytic substances, does not influence in a marked degree the progress of an infectious disease. The writer was able to demonstrate in vitro bacteriolytic properties in leucocytic extracts produced by the method devised by him, but he long ago reached the conclusion that such bacteriolytic powers were not sufficient to account for the profound changes actually produced in animals suffering from bacterial diseases while undergoing a course of treatment by the parenteral injection of leucocytic substances. For the reason of these profound changes, we must look elsewhere than to the direct lytic action upon the invading bacteria.

As the result of experimental blood counts and tests made and being made, we believe that the great therapeutic benefits derived depend upon the production of a hyper-leucocytosis, and attendant phagocytosis, rather than upon any direct action of the leucocytic extract itself.

It is a well established fact that the parenteral injection of protein substances increases the leucocytic count, and even the injection of a foreign vegetable proteins, such as nuclein preparations, produce in many infections marked beneficial effects. It would soon, however, in carrying out leucocytotherapy that in order to produce a hyperleucocytosis without unnecessary strain upon the organism that it is eminently more logical for the organism to care for parenteral injections of substances similar to its own elements than to any elements which are of an alien character.

It is also a well established fact that in the treatment of diseases any method that will stimulate the leucocytic producing organs to more active functioning, thereby producing a leucocytosis, is and must of necessity be of positive benefit. The great problem before us then in this connection is to ascertain the simplest and most innocent means of accomplishing this end.

About the beginning of the year 1911, the writer instituted a series of experiments with a view of obtaining leucocytic substances in quantities that would render them not only therapeutically practical, but also commercially possible. The general plan adopted was the obtaining of leucocytes directly from the blood of normal animals, avoiding any changes in their character, as might be possible during the process. It would be obviously impossible for us with the time at our disposal to go into detail as to the various methods instituted to bring this about. Suffice it to say that after much experimental work had been done the following general technique was adopted. The blood is obtained under aseptic precautions from the jugular vein of a horse or other domestic animal, is allowed to flow into sterile flasks containing a sufficient quantity of a one per cent. sodium citrate solution to prevent coagulation. The blood is then centrifuged, the serum and citrate solution is syphoned off, and the corpuscles are treated with a five-tenths of one per cent. solution of acetic acid and again centrifuged. This process is repeated several times, until the red blood corpuscles are eliminated. The leucocytes are then washed with physiological salt solution three or four times to remove most, if not all trace of the acetic acid, after which they are ground in a mortar with quartz sand. To the washed and ground leucocytes is then added about five volumes of sterile distilled water to one volume of leucocytes. This mixture is exposed to a temperature of  $58^{\circ}$  C. for one hour, when it is placed in the incubator for a period of twelve hours, and again exposed to a temperature of  $58^{\circ}$  C. for one hour. This process of exposure to different temperatures is continued for two or three days, or until auto-digestion is complete. It is then centrifuged, the supernatant fluid decanted and sufficient trikresol added for preservative purposes.

As to the changes produced following the parenteral injections of the above described preparation, will state that we do not propose to enter into at this time a long technical description of the various experiments instituted and being instituted for the purpose of throwing some light upon the action brought about by injection of leucocytic substances. In conjunction with Dr. Gertrude Moore, to whom I am deeply indebted for kindly consenting to help in this work, the results of our investigations along these lines we hope will be published in some scientific journal in the near future. We will simply state at this time that the use of leucocytic substances parenterally injected give rise to a marked leucocytosis accompanied by profound changes in the leucocytes themselves. You will please pardon us, however, if we briefly give the results of one experiment, which will serve to bear out the statement above made.

Following the subcutaneous injection of two c.c. of leucocytic extract obtained from horses' blood into a rabbit, the blood changes were observed at frequent intervals for a period of 36 hours.

The injections were made at 9 a. m., at 10.30 a. m. a marked leucopenia was observed, which was followed by a leucocytosis, which reached its maximum at 3 p. m. of the same day. The leucocytic count then dropped to slightly above the normal at midnight, when another upward curve was observed, which reached its maximum at 2 p. m. the day following. This was followed by a gradual decrease to near the normal. It will be interesting to note that two distinct curves occurred in the total leucocyte count within the period of thirty-six hours, at the end of which time the count showed a tendency to persist at a point about one hundred per cent. above the normal. While the total leucocyte counts were intensely interesting, the differential counts were infinitely more so. The polymorphonuclear neutrophils increased about one hundred per cent., the small mononuclears decreased about one hundred per cent., the large mononuclears decrease about twenty-five per cent., while the eosinophiles increased about eight hundred per cent. In all our experi-



ments we found that there occurred a marked eosinophilia. In fact, in one rabbit, the eosinophiles showed by differential count forty-four and two-thirds per cent. of the total count.

Much study has been given to blood pictures in this connection, according to the methods of Arneth, who, you no doubt are aware, claims to be able to estimate the resisting power of an individual by a differential count of the polymorphonuclear neutrophiles with respect to the number of their nuclei. Arneth claims that in cases with low resisting power there is a preponderance of cells with one nucleus, while in cases with good resisting power the percentage of leucocytes with from three to four or five nuclei is increased. It is too soon, and we are not yet prepared to interpret the probable significance of the profound changes that were observed, and we crave your indulgence to defer offering any opinion on this phase of the question to a later date. These brief notes of some of the changes observed are simply made at this time to demonstrate that in the study of the action following the parenteral injection of leucocytic substances we must conclude that the changes produced are of intense interest and will require much more thought and study before an interpretation of the results produced is even attempted.

Experiments are already under way to determine the different effects, if any, following the parenteral injection of leucocytic substances obtained from various animals into a series of animals of the same species, with a view of ascertaining whether an extract from a different species will give rise to the same changes as an extract from the same species. Manoukhine and other Russian workers have in the treatment of pneumonias and other infections used leucocytes taken from the patient's own blood and claim to have had splendid results, but whether future investigations will solve the problem as to whether more benefit may be derived from the use of an individual's own leucocytes, the leucocytes of another individual of the same species, or the leucocytes of an individual of a different species, is yet to be determined.

Another vital question that requires investigation is to deter-



mine whether leucocytic substances obtained from a hyperimmunized animal possesses specific therapeutic powers. Practically no research has been conducted along these lines, but what little work has been performed tends to demonstrate that a leucocytic extract obtained from a hyperimmunized animal differs in no respect from that obtained from a susceptible animal.

The practical therapeutic application of leucocytic extracts has been followed out during the past year not only in our own practice but also by other practitioners. Various infections have been treated with, in some types of infections, encouraging results, while in others the beneficial results were not so marked.

The diseases to which the treatment has been applied and which have given the most gratifying results, are such infections as purpura, influenza, pneumonia, etc. In the case of purpura the agent seems to be, if you will permit us to use the term, a specific. In such cases, about the third day following the daily injections of the extract, the swellings, no matter how marked, disappear from the extremities and the mucus membranes clear up. In fact, all the characteristic clinical manifestations of toxemia incidental to this infection disappear and the animal makes an uneventful recovery in from ten days to two weeks. Apparently hopeless cases of purpura make nice recoveries following the daily intratracheal injections of the extract. The extract is administered in daily doses of from seven to ten c.c. intratracheally. It is given intratracheally for the reason that when given subcutaneously it was found to cause intense swellings, which, while giving rise to no unpleasant sequelae, have a tendency to alarm owners or attendants. Just why marked swelling follows the subcutaneous injection of the extract we are not prepared to state, but it is possible that on account of the slight acid reaction possessed by the extract, a so-called acidosis is produced with an accompanying oedema.

In conclusion, we hope to be pardoned for touching so superficially upon the various phases of this subject, but the problem possesses such magnitude that it is obviously impossible during the limited time at our disposal to go deeper into the subject

matter at this time. Our only excuse for presenting the matter in such a crude manner is that perhaps other laboratorians may be stimulated to take up the work and that as a result of investigation by a number of individuals working independently a therapeutic remedy of positive value for the alleviation of human and animal suffering will eventually be produced.

**HORSES SAVED THE CITY.**—In the recent snow-bound condition in New York City the horse proved to be still master of the situation; whether it was for the purpose of hauling fuel to keep the population from freezing to death, food to keep them from starving to death, or the fire apparatus to keep them from burning to death. A horseless city, as have been the asinine aspirations and predictions of some *advanced* people, would, in the recent series of snowstorms, have caused a sad spectacle in New York, Philadelphia and other large cities!

**PROMOTED TO THE RANK OF SALISSA.**—Dr. Jacques E. Aghion, Bey, veterinarian of the state domains, Sakha, Egypt, an old subscriber and contributor to the pages of the REVIEW, was on leave of absence during the past summer, during which time he visited the veterinary schools of Lyon and of Alfort, meeting the principals of each, and visited the Royal College of Veterinary Surgeons, London, where he was courteously received by Sir John McFadyean. But higher honors were in store for him in his own country. His Highness the Khedive promoted him to the rank of "Salissa," which entitles him to be called "Bey."

**SEVENTEENTH ANNUAL REPORT UNITED STATES LIVE STOCK SANITARY ASSOCIATION.**—This report will come from the printer before March 1. It is of unusual interest and value to every live stock sanitarian. The article on "Federal Meat Inspection" by Dr. V. A. Moore, dean, New York Veterinary College, is worth several times the price of the book.

Please send immediately your orders for as many copies as you can use at \$1 per copy, enclosing remittance to cover.

JOHN J. FERGUSON, Secretary-Treasurer,  
Union Stock Yards, Chicago, Ill.

## THE PASSIVE TREATMENT OF CHRONIC BONE AND ARTICULAR LAMENESS.

BY MART R. STEFFEN, M.D.C., V.S., BRILLION, WIS.

---

In the following treatise I desire to show that in the treatment of chronic or confirmed lameness whose pathology involves to a greater or less extent osseous structures, including such conditions as spavin, ringbone, splint and sessamoiditis, the surgeon can obtain prompt and more satisfactory results as far as cosmetic effect is concerned without resorting to actual cautery.

In the appended table of nineteen cases of high-grade, chronic bone lameness fourteen cases were permanently and completely cured of lameness without leaving the slightest scar; and in over half of these cases the exostosis disappeared entirely, while in the remainder it was reduced in varying degrees.

The results in the five cases which did not make a complete recovery are shown in the table, one of these cases having been submitted to actual cautery later with recovery following.

The veterinarian whose practice is among drivers and the veterinarian whose patients consist of pure-bred or high-grade draft horses finds it greatly desirable to overcome such lameness without marking the patient for life. Once a horse is fired for spavin he remains always a spavined horse, whether he recovers from the lameness or not. He permanently wears the tag of unsoundness. With the treatment which I shall outline and which I have used successfully for a number of years this is not the case.

I could show the reader horse after horse which has been treated in this manner for spavin or ringbone which would pass the average examination for soundness; in which not only scars of operation such as follow firing and sometimes blistering are absent, but in which also all trace of previously existing exostosis has disappeared. Furthermore, in many of these cases the results were obtained with the patient doing his regular work every day.

Careful selection of cases is of course essential. On this point

I have only one rule which I adhere to absolutely. I treat no case which does not "warm out" of the lameness. The horse that goes just as lame after he has been driven a mile or two as he did the first few hundred rods is not a good case for treatment; not only my treatment, but any other form of treatment. Such cases have a lameness which is to a great extent mechanical; encroachments of the exostosis upon the articular cartilage, into the articulation, adhesions to tendons or ligaments, destruction of the articular cartilage, etc., etc.

I think most surgeons will agree with me that the cases in which a reasonable assurance of recovery can be given are those in which the horse "warms out" of the lameness. The other form—never.

Actual cautery is practically the only genuinely empirical treatment to which modern veterinarians have clung tenaciously. Tenaciously is the word exactly.

Not only should we try to get away from it because it is empirical. It is also decidedly barbarous, cruel, and in the light of present-day progress in surgery and medicine has no place in our professional armamentarium.

A few of us there may be who do our firing under local anaesthesia, but they are not the ones who do the most firing. The busy surgeon puts a twitch and a side-line on his patient and "goes to it." And though his patient may go sound at the expiration of six to eight weeks of idleness he bears the brand ever after of spavin, ringbone or splint or whatever unsoundness the case may be. Give your patient every chance.

I tell you that you can get a complete recovery in seventy per cent. of these cases without the iron; get recovery just as quick if not more quickly, with no scars or marking and no protracted period of idleness. Then should your patient turn out to be one of the thirty per cent. who do not recover under this treatment you still have something up your sleeve; you can still fire, do cunean tenotomy or tibio-peroneal neurectomy. You will find, I can assure you, that one recovery without resort to firing is worth several recoveries with the iron.

My line of treatment for these conditions is iodine locally and potassium iodide internally. It is not a new method by any means, except in so far as relates to my method of applying the iodine locally. This I do in the form of resublimed iodine dissolved in an essential, highly volatile oil, suspending this solution later in a heavy, non-volatile oil. This can be applied indefinitely without producing the slightest irritation and yet will produce a most pronounced alterative action locally. This local effect is obtained by thoroughly rubbing in the oily suspension. That the iodine is liberated and retained in the tissues to which it is applied in this manner is evidenced by the fact that in white horses the skin in the region will often assume a bluish-black tint where the applications are made for a prolonged period. This pigmentation slowly disappears after varied intervals following the discontinuation of the oil containing the iodine crystals; usually a period of several months elapses before the skin clears up again entirely.

Given a case of spavin, ringbone, splint or other bone lameness, properly selected, I clip the hair closely around the entire joint (in the case of spavin or ringbone) or part involved. Here is the first point in the proper application of the iodized oil, namely, taking in a sufficiently large area around the lesion. It is of little use to apply the treatment only directly upon the exostosis. I apply it freely over a large surface contiguous to the lesion and persist in the applications day after day, in some cases continuing the treatment daily for four weeks without intermission.

This is the second point in applying this treatment properly. The applications must be made daily; the whole area to be painted with the oil once a day and this to be followed by immediately rubbing the oil into the parts briskly, taking at least five minutes by the watch for the rubbing.

About the second week in the course of this treatment I put my patients on potassium iodide, one dram doses three times daily on the feed—in solution, of course. I keep this up for ten days or two weeks, unless symptoms of iodism appear sooner.



Here we find more evidence that the iodine in the oil gains entrance to the tissues when applied as described above, and this from the fact that animals in which these rubbings of the iodized oil are being made become saturated with the potassium iodide very quickly, and in exceptional cases symptoms of iodism may appear in a few days after they are put on the potassium iodide.

If it is not putting the owner to much expense or inconvenience I direct that the patient be given rest the first week; otherwise I merely caution the driver against unduly exerting the animal, especially as regards turning in or out too suddenly. Also, as is meet, I see to it that the horse is properly shod.

In summing up I would call attention again to the forms of lameness for which this treatment is to be used. I do not recommend it in cases of tendon, ligamentous or bursal lameness.

In my opinion, basing it upon my success with this line of treatment, a veterinarian has no right to disfigure a horse by firing except as a last resort. The point to bear in mind with this treatment is this: Don't be stingy with the iodine; *put it on* and continue to put it on. And then try to produce iodism with the potassium iodide. The following table is a record of cases treated recently in this manner.

Case No.	Class.	Lameness.	Duration of treatment.	Result.
1	Drafter.....	Spavin.....	8 weeks.....	Sound.
2	Express.....	Spavin.....	5 weeks.....	Not quite sound.
3	Drafter.....	Spavin.....	1 week.....	No improvement.
4	Driver.....	Spavin.....	3 weeks.....	Sound.
5	Drafter.....	Spavin.....	4 weeks.....	Sound.
6	Drafter.....	Spavin.....	6 weeks.....	Sound.
7	Drafter.....	Spavin.....	4 weeks.....	Sound.
*8	Drafter.....	Spavin.....	5 weeks.....	Improved; not sound.
9	Drafter.....	Spavin.....	6 weeks.....	Sound.
10	Driver.....	Spavin.....	6 weeks.....	Sound.
11	Drafter.....	Low ringbone, front.....	3 weeks.....	No improvement.
12	Drafter.....	High ringbone, front.....	8 weeks.....	Sound.
13	Driver.....	Ringbone, high, front.....	7 weeks.....	Sound.
14	Driver.....	Ringbone, high, hind.....	8 weeks.....	Improved. Fired later. Sound.
15	Drafter.....	Ringbone, high, front.....	4 weeks.....	Improved; not sound.
16	Driver.....	Sessamoiditis, front.....	7 weeks.....	Sound.
17	Driver.....	Exostosis on Os Calcis.....	6 weeks.....	Sound.
18	Driver.....	Splint.....	1 week.....	Sound.
19	Drafter.....	Splint.....	2 weeks.....	Sound.

\*Number 8 has since been fired, with no further improvement.

SEE EXAMINATION NOTICE on page 17 (advertising forms), for Food Inspector.



## HOG CHOLERA—DISTRIBUTION AND USE OF SERUM AND VIRUS.\*

BY M. H. REYNOLDS, STATE UNIVERSITY AND LIVE STOCK SANITARY BOARD.

**SERUM ONLY.**—It seems to me that there can no longer be question but that treatment by the serum-only method is a useful procedure and that by it a satisfactory percentage of treated hogs can be saved, which would otherwise have been lost. Its range or usefulness is, of course, limited. Serum-only is useful when properly utilized in infected herds with acute type of the disease and where there is plenty of natural virus. State serum used by the serum-only method should be administered by permit holders, usually veterinarians, but in some cases by trained laymen.

**SERUM-VIRUS METHOD.**—The serum-virus method is capable of being made either a great blessing or a curse to live stock interests, depending entirely upon the extent to which its use can be controlled and wisely directed. Up to this time it is doubtful if more good than harm has been accomplished the country over. More than one veterinary sanitarian has expressed the wish that the serum-virus treatment had never been developed.

I wish to offer what I believe to be a fundamental proposition; namely, that virus should be administered exclusively by men in State employ—at least temporarily in State employ. No one should administer virus who has not had proper scientific training to make accurate diagnosis and to operate safely and intelligently.

Under proper official control, serum virus is the proper procedure for healthy herds in infected territory and for apparently healthy hogs in infected herds where the supply of natural virus may be limited. Serum-virus treatment should be very rarely used in uninfected territory and then exclusively by men in regular State employ.

\*Presented at a national conference of federal and state officials engaged in hog cholera control work, Chicago, March 3, 1914.

I would not propose to force it upon anybody, but hope to offer something so much more desirable that owners will accept it as a privilege and have no temptation to use virus in any other way.

*First*; the State should employ a limited number of field veterinarians on full time for services in infected districts where there are no competent local men and for the administration of serum-virus in occasional cases (which should be very rare) in uninfected territory. Minnesota has these field men already available.

For work in infected territory we propose to employ local veterinarians who will work for the time being in State employ. A large number of replies from veterinarians to whom the plan has been submitted comes like a great sigh of relief. Practically everyone approved the plan heartily and offered to serve in the way suggested. This plan proposes to supply serum, virus, and veterinary service. The veterinarian would be paid from a fund supported by farmers for whom work is done. The charge for veterinary service would be based upon the amount of serum used, or possibly upon the number of pigs treated. When a farmer wishes to have his herd treated by the serum-virus method, he will pay the legal price for State serum or actual cost in case the supply of State serum is insufficient and commercial serum must be used. In addition to this he will pay in advance for veterinary service. There would be flat rate for all sections of the State. Serum would be shipped express C. O. D. to the owner. Virus would go to the veterinarian who is to administer the treatment.

The question of pay for veterinary service has not been definitely settled. The rate of pay must be placed so that there can be no reasonable suspicion of graft or excess pay; otherwise the plan will very soon fail, because it will lack public confidence. The veterinarian can well afford to work for the State under this plan,—much cheaper than he could under the old plan for the private owner—for many reasons.

I am counting on the public spirit of my profession and a willingness to contribute a public service on account of a public

calamity. I am hoping that our best veterinarians will accept this plan and agree to do the work for a little less, not very much, but somewhat less than their usual rates.

Our first estimate is that the veterinarian would be paid about \$8 for an eight hour day, plus expenses and mileage for his auto or team.

He would go out and do the work on an order from the State. When it is finished the veterinarian would send in his report and receive a check.

Under the present law we could supply State serum and veterinary service for approximately one cent per cubic centimeter.

At present the State is paying three-fourths of the cost of production and owner about one-fourth. I personally believe this should be reversed. The State should pay about one-fourth and the owner about three-fourths of the cost of production, and together they should add a small margin for business safety.

In case such a change as this is put into effect, the State would pay about one-third of a cent per cubic centimeter; and the owner would pay one cent per cubic centimeter for serum and from one-fourth to one cent per cubic centimeter for veterinary service, depending on the amount of work that could be done as one job. This would make a total, if our laws should be changed so as to make the State serum plant self supporting, of one and one-quarter to two cents per cubic centimeter, total cost to the owner for serum, virus and veterinary service.

It would seem that by this plan the dose, method, prompt reporting, determination as to when and where virus may be used and who may use it, will be under direct State control.

Men who get poor results can be promptly dropped from the list of permit holders employed by the State for the work.

Vaccination cholera, a small percentage of which is inevitable, will be under State observation from the start, and adjacent farms be protected.

The veterinarian doing the work will have no money transaction with the owner, no slow or bad accounts, no large advance

investment in serum, express, telegrams, and long distance 'phone calls—no hard feeling with the owner and loss of good clients. He will do the work upon an order from the State, send in his report, together with statement of time, mileage and expense, and receive a check. The owner will be reasonably assured of good serum, careful administration and honest virus.

As previously suggested, there is at present no thought of forcing this upon hog owners. The plan is to offer them something so much better and so much cheaper than they can get by independently using serum, virus and private veterinary service and so violating the law, that they will be glad to avail themselves of the plan as a privilege.

Whether we can put this entire plan into operation for Minnesota, at an early date, depends on the solution of one or two problems with reference to proper handling of funds and administration.

---

DR. SALMON ELECTED TO HONORARY MEMBERSHIP.—At the January meeting of the Montana Veterinary Medical Association, in Bozeman, Dr. D. E. Salmon was elected an honorary member of the association. It was a very interesting and instructive meeting. Dr. Salmon presented an interesting and valuable contribution to the literature on hog cholera, and the production and use of hog cholera serum, which will be given to the profession through the medium of the REVIEW as soon as space will permit. A resolution indorsing the Army Veterinary Service Bill, adopted at that meeting, is published on page 122 of this issue.

CONTINUES TO BE OF GREATEST EDUCATIONAL VALUE.—The following from the British West Indies: "Please find enclosed post-office order for \$3.60 for foreign subscription to the AMERICAN VETERINARY REVIEW, which continues to be of great interest and educational value to me, and which I consider to be the greatest essential to the successful practice of modern veterinary science. The publication and Dr. Robert W. Ellis have my sincere good wishes for continued success."

## WATER IN HEALTH AND IN DISEASE.

BY S. J. ALCALAY, D.V.M., ELGIN, ILL.

---

The question has many times arisen in my mind whether veterinarians during their whole career have paid much attention to the action and the lubricating power water plays in healthy and sick animals which come under their control.

The rôle water plays as a food and as a dissolvant will be treated from two standpoints: (A) from the experiences and discoveries made by faithful and reliable men who made a special study on the subject. For this English, French and Spanish literatures are consulted, in combination with what personal knowledge a practitioner may acquire from treating about 1,000 to 1,500 cases a year.

(B) From the Book of Nature; that is, from the way nature provides food to its beings that derive nourishment from what apparatus or arrangement they are endowed with towards gaining their sustenance without using any volition.

(A) All authors agree that water must be used in order to be healthy, but disagree as to the times of its use. Some claim that water of no kind should be taken during meals. They claim that nature has provided for what moistening of the food is needed, the three pairs of salivary glands which by frequent use will fully supply the amount of water needed for softening and lubricating the ingesta taken in. This school, which for our purpose may be called "the dry school theory," advocates that it is objectionable to use water with the meal. Among the authors who have studied the water question in live stock one is referred to the splendid work "*Feeds and Feeding*," by Professor Emeritus, A. Henry, of Wisconsin. He used to say in class "that the stomach of the horse being so small any amount of water allowed to a horse ought to be given about half an hour before the grain feeding, as otherwise the grain may be washed out of the stomach and carried into the duodenum and thus the action of stomachal



juices will have no opportunity of working their corroding action (the HCl action) on the feed.

Probably many authors could be cited, but our space being limited we shall endeavor to study the foreign and American authors, and only those topics which have a more or less close connection to veterinary medicine; or if the application of the findings by the different authors is possible in our profession.

Now let us enter into the chemistry of water. Generally speaking, water, besides its  $H_2O$  basic constituents, carries in solution carbonates mostly of lime. All "Ca" compounds are very useful in the body, provided they may be associated with different chemical ingredients useful for the building up of different tissues such as bone, cartilage and the like. Water has the property of dissolving substances and forming both positive and negative "ions" for this reason, water is considered as a powerful and general solvent; that is why it is never pure in nature. This solving property is the one that interests us the most. All foods, with the exception of NaCl, must be digested so they should be available to be taken into circulation and only in a liquid stage. Whether this be in the animal or vegetable kingdom, the function of water in this case is plainly understood.

All the toxic matters generated, whether by healthy or diseased tissues, are mostly excreted in a liquid or semi-liquid stage through urine or sweat, and never totally dry. Even the evacuation of feces is rendered much easier when the alimentary canal is well supplied with liquid matter.

Now the "Wet School theory": Kneip having had great success in the use of water both externally and internally came to a series of discoveries which may be summarized as follows:

(a) Water for internal use is the best means to unload the system from many of its noxious products, and any amount must be ingested between and with meals. He claimed that judicious use of water will prevent formation of stone in the liver, bladder or the like. Many diseases are prevented or overcome by good use of water; it prevents formation of stone in the liver and bladder.

(b) Externally.—The *Spanish Shirt* is, to his estimation, a very useful remedy towards immunizing the system against refrigeration or taking cold.

(B) A hypothesis is advanced that all that which is created over the surface of mother earth is intended for the use and happiness of its inhabitants; and also that nature is an open book for we men, or otherwise animals, endowed with good judgment to study. Now then we see that all foods contain at least 5 per cent. of water. This refers to nuts, but generally speaking the amount of water contained in natural food stuffs, legumes or the like, usually goes as high as 80 and even 90 per cent. Milk, the only food for mammipera at the beginning of their lives, contains a very great amount of water.

I would have put "finis" to this article if it were not for what I have seen; veterinarians forbidding the use of water in their calls out in the country. It may be true that ice cold water is injurious, but otherwise water should be ordered always, and every time. Water helps the system towards absorbing the drugs poured in. I always found that water heated before being mixed to medicine is of a greater help. The heat conveyed to the stomach by the water seems to have a soothing action.

But water may be given to a horse even when he is perspiring from hard work or warm weather. Even in case of fever water may be allowed with a few drops of HCl or acetic acid. In these cases the amount of water should be limited, say to 2 or 3 quarts, not to exceed one gallon; and when the animal is cooled off then the regular amount of water may be allowed. This is my personal experience used with success.

---

NOTE.—The Spanish shirt is a long shirt made of a porous material such as burlap, which is wetted and as much water as possible is squeezed out. This shirt is put on next to the skin before going to bed. I have seen this process used and that person who had it on never took cold for that whole season.—S. J. A.

---

THE REVIEW APPRECIATED IN CEYLON.—The Municipal Veterinary Surgeon of Colombo, one of our subscribers in Ceylon, expresses great happiness in receiving his numbers of the AMERICAN VETERINARY REVIEW.

## VIABILITY OF THE ANTHRAX BACTERIUM.\*

BY M. J. HARKINS, V.M.D., PHILADELPHIA, PA.

---

In the year 1850 Davaine (1) and Rayer (2), in 1855 Polender (3) and soon after Branell (4) found in the blood of animals dead of anthrax peculiar rod-shaped bodies, the etiological importance of which was later proved by Davaine (5) in 1865.

However, it remained for Robert Koch (6) in 1876 to be the first to artificially cultivate the anthrax bacterium, the first micro-organism of any pathogenic disease to be isolated. In the same year Koch (7) showed that anthrax infected material such as blood, hide, hair, etc., subjected to all possible conditions such as dryness, moisture, decomposed, in a diluted or undiluted form, did not impair the infectiousness of the micro-organism in the slightest degree.

M. A. Barber (8) has shown that the inoculation of sensitive animals with the minutest quantities, single micro-organisms for instance, of highly virulent strains will produce death.

At one time the anthrax spore was considered the most resistant form of spore, but to-day it is well known that certain saprophytic spores belonging to the group of the potato bacilli are much more resistant. Nevertheless the anthrax spore is one of the most resistant of the known pathogenic micro-organisms. This resistance of the anthrax spore is not infrequently demonstrated in nature, as evidenced by sudden outbreaks of the disease in districts believed to be entirely free from anthrax. According to Sirena and Scagliose (9) anthrax spores are preserved in moist or dry earth from 2 to 3 years, in drinking water 17 years, and in ichor 15 months. An estimate of the extraordinary power of the resistance of anthrax spores in nature may be obtained from the reports of Wancke, Kissuth, Müller, Sickert (10) and others, among which is an observation that gravel taken from pits in

---

\*Read before the Pennsylvania State Veterinary Medical Association, at Philadelphia, March, 1914. The Mulford Laboratories, Glenolden, Pennsylvania.

which twenty years previous anthrax cadavers had been buried was responsible for an outbreak of anthrax when the gravel was used as a dressing for walks and driveways. Just as remarkable though not occurring under natural conditions are instances where anthrax spores remained alive and virulent for ten to twelve years in an emulsion or on dried silk threads as reported by Aiello and Drago (11) and for seventeen years reported by Busson (12). It has also been reported that gelatin cultures eighteen and one-half years old showed growth when transplanted in fresh suitable medium (Szekley (13)), but no reference is made regarding virulence.

In March, 1900, Dr. M. P. Ravenel immersed several short pieces of suture silk, approximately 5 cm. in length, in a liquid culture or suspensions of anthrax bacteria which were dried and placed in a glass test tube, the tube was sealed with a cotton plug and tight fitting rubber stopper. The sealed tube came into the possession of Dr. John Reichel, who kept it at room temperature from 1905 to 1914. The threads in the test tube were thoroughly dry and without a trace of nutrient media. This point has an important bearing on the question which naturally arose. Could the culture be regained from the dry silk threads and would it prove virulent?

To determine the first point the test tube with the threads was opened carefully on January 26, 1914, and two threads removed with sterile forceps, cut in half and dropped into approximately 5 c.c. neutral plain bouillon. The cultures were incubated at 37.5 degrees C. for 48 hours, when a moderate filamentous growth was observed, which appeared to be adhering to the thread. The surrounding medium remained clear. A smear of these extensions from the threads stained with Loeffler's alkaline methylene blue revealed a micro-organism conforming in every way with the anthrax bacterium.

Subcultures on neutral plain agar and in neutral plain bouillon gave abundant growths of characteristic anthrax bacterium.

Having shown that the anthrax spore on the threads could give rise to typical anthrax bacterium at this time, the virulence

of the subcultures was next determined. Accordingly two white mice, two guinea pigs, a rabbit and a sheep were inoculated with the following results:

TABLE

Animal.	Number.	Date.	Result.	Bacterial Findings.				
White mouse...	4202	1/29/14	Dead 24 hrs.	Anthrax bacterium isolated from heart blood.				
White mouse...	4203	"	"	"	"	"	"	"
Guinea pig....	4208	2/2/14	" 48 hrs.	"	"	"	"	"
Guinea pig....	4209	"	"	"	"	"	"	"
Rabbit.....	4210	"	" 72 hrs.	"	"	"	"	"
Sheep.....	1226	2/24/14	" 48 hrs.	"	"	"	"	"

From this observation the following conclusions may be drawn:

1. Anthrax spores dried on threads and without nourishment remain viable *i. e.*, able to propagate for thirteen years and eleven months.

2. The spore under these conditions retain some virulence, if not all, for the same length of time.

## REFERENCES.

1. Davaine—Hutyra and Marek Pathology and Therapeutics of the Diseases of Domestic Animals, Vol. I, Page 1, 1912 (English translation).
2. Rayer—Hutyra and Marek Pathology and Therapeutics of the Diseases of Domestic Animals, Vol. I, Page 1, 1912 (English translation).
3. Pollender—Hutyra and Marek Pathology and Therapeutics of the Diseases of Domestic Animals, Vol. I, Page 1, 1912 (English translation).
4. Branell—Hutyra and Marek Pathology and Therapeutics of the Diseases of Domestic Animals, Vol. I, Page 1, 1912 (English translation).
5. Davaine—Hutyra and Marek Pathology and Therapeutics of the Diseases of Domestic Animals, Vol. I, Page 1, 1912 (English translation).
6. R. Koch—Hutyra and Marek Pathology and Therapeutics of the Diseases of Domestic Animals, Vol. I, Page 1, 1912 (English translation).
7. R. Koch—G. Soberheim—"Milzbrand"—Handbuch der Pathogenen Mikroorganismen, Bd. III, Seite 588, 1913.
8. Barber, M.A.—The Effect on Mice of Minute Doses of B. Anthracis. Jour. of Infectious Diseases. Vol. VI, No. 5, Nov., 1909.
9. Sirena and Scagliose—"Milzbrand"—Handbuch der Pathogenen Mikroorganismen, Bd. III, Seite 612, 1913.
10. Wancke, Kissuth, Müller, Sickert—"Milzbrand"—Handbuch der Pathogenen, Bd. III, Seite 648, 1913.
11. Aiello and Drago—"Milzbrand"—Handbuch der Pathogenen Mikroorganismen, Bd. III, Seite 612, 1913.
12. Busson—"Milzbrand"—Handbuch der Pathogenen Mikroorganismen, Bd. III, Seite 612, 1913.
13. Szekley—"Milzbrand"—Handbuch der Pathogenen Mikroorganismen, Bd. III, Seite 612, 1913.

HAS NOT MISSED A NUMBER SINCE 1897.—Dr. S. E. Hershey, of West Virginia, says: "Enclosed find check for the REVIEW in advance. I cannot see how any successful veterinarian can be without it. I have not missed a number since 1897."



## BARIUM CHLORIDE AS AN EVACUANT IN THE HORSE.

By A. A. LOCKHART, V.S., M.D.V., CARNDUFF, SASK., CAN.

---

I am prompted to publish my experience with barium chloride as a rapid evacuant for the horse, with the hope that it may stimulate others who have had experience with this drug to give some account of its action in their hands and perhaps help to prevent some who are not familiar with its use to avoid serious accidents through not fully appreciating the danger which may attend a slight overdose.

During the past three years I have used in the neighborhood of two pounds of this drug, giving it entirely in solution by the mouth. In that time I have had two deaths, which I can attribute directly to it, and though I am still using it cautiously I never feel quite easy concerning the result until I have had a report next day.

When I first commenced using this drug, I was under the impression that the correct dose for a horse by the mouth was from  $\mathfrak{v}$ ii to  $\mathfrak{v}$ iv.

Winslow, in his latest edition, gives these amounts and also states that he has found it a perfectly safe drug in these doses. He also states that a dose of  $\mathfrak{v}$ ii may be repeated in an hour when necessary.

I may say that my experience does not bear out these statements. The largest dose I ever exhibited was  $\mathfrak{v}$ iii to a good sized work horse.

This dose was given about 11 a. m. About 9 p. m. I was called out with the message that the animal had been purging violently all afternoon and appeared to be in a very bad condition.

I found the patient in a truly alarming state, breathing very much disturbed, actions of the bowels about every five minutes or less with considerable tenesmus. Very little feces were being passed at this time on account of the bowel being pretty well

emptied. The flanks were extremely hollow and the animal kept lying down and getting up at intervals.

I gave immediately a large dose of morphine and atropine hypodermically, which seemed to have a beneficial effect, but in the morning the patient was paralyzed and unable to stand properly even in a sling. It succumbed in about two days in spite of maximum doses of strychnine.

I had a similar fatal result in a light draft horse which received 5iiss. The last occasion on which I had a toxic condition from this drug was this winter. I was called to a farm some twelve miles distant, and upon arrival found a team of horses, both of which presented symptoms of impacted colon, which diagnosis was confirmed upon rectal examination. They were as nearly alike in size as two peas (about 1,050 pounds), and both had received a pint of oil about twelve hours before my arrival. I immediately gave each horse barium chloride 5iiss in solution. About an hour and a half later I left to attend another call. At this time one horse had been passing feces at short intervals for three-quarters of an hour and was standing apparently quite easy. The other one was in considerable pain, had passed a lot of flatus but very little feces. That night the owner called me up on the 'phone and said that the horse which was suffering and seemed so sick when I left had become easy about half an hour later. Its bowels had been moving nicely and it was wanting to eat. The other one, however, had purged all afternoon, and he thought it must be paralyzed, for it could not get up. The following day this animal was got into a sling when it was found it could support its weight allright. Fl. ext. nucis vomica was prescribed in 5i doses every two hours and a good recovery ensued.

In conclusion I may say that I have found no drug which has given me such satisfactory results in the capacity of a quickly acting cathartic in the horse as barium chloride given by the mouth, *provided the amount which the animal was capable of standing had not been exceeded*. In my opinion the one and only drawback to the drug is that the effective dose seems to be so perilously near the toxic dose that it is almost impossible to use

it effectively without incurring some danger. Whether one is justified in using it at all under these circumstances is also a matter for debate.

To anyone commencing the use of this drug my earnest advice is never to exceed 5iiss as a dose for any horse. For light horses round 1,000 pounds 5i to 5iiss is my opinion the very limit of safety. Doses of this size will in the majority of instances give results; but whether they are *absolutely* safe I have my doubts. Personally, I would not repeat a dose of barium under eighteen hours unless I was quite indifferent to whether the animal died or lived.

---

LOUISIANA VETERINARY MEDICAL ASSOCIATION held its annual meeting in Baton Rouge, on February 17th, with Vice-President Dr. F. J. Douglass, of New Orleans, in the chair, and Secretary Dr. Hamlet Moore, of New Orleans, at his desk. The profession throughout the state was well represented.

The chief business of the meeting was to consider plans for the reception of the A. V. M. A. in New Orleans in December.

Dr. W. H. Dalrymple, of Baton Rouge, was unanimously elected president for the ensuing year, with Dr. Sheard Moore, of Donaldsonville, La., vice-president, and Dr. Ferdinand J. Cambron, of New Orleans, secretary-treasurer.

A BIG MEETING IN NEW ORLEANS IN DECEMBER.—Our esteemed collaborator, Dr. N. S. Mayo, in sending a report of the annual meeting of the Alabama Veterinary Medical Association, held at Auburn in March, for publication in the REVIEW, says in his letter of transmittal (speaking of the meeting), "It was fine"; and added: "There will be a big meeting in New Orleans next December." This report, from the secretary of the A. V. M. A. who has been mingling with our brothers in the Southland, and reading the signs of the times in their countenances, will be cheerfully received by our readers throughout the country.

JUST CAN'T DO WITHOUT IT.—An Arkansas brother writes: "Please send me the REVIEW for another year, just can't do without it."

## THE STOMACH TUBE A USEFUL PROBANG.

BY CHAS. F. WOLF, D.V.M., PIONEER, OHIO.

---

In the AMERICAN VETERINARY REVIEW of January appeared an article in which, to my mind, one of the most useful instruments is not mentioned. The editorial referred to on page 423 contains a statement of method used by the celebrated Johann, in which a loop of wire is pushed down the œsophagus with the hope of encircling an object which is producing choke. I will venture that in most any community there are men, same as there are about here, that will try the methods known to farmers and barn men, of causing the animal to "jump over" something, pour lard down his "throat," or "punch" it down with a broomstick. If you use a fence wire bent into a loop, isn't the farmer likely to try it next time and so save the fee, besides possibly doing injury to the animal? I find most chokes of whole apples and potatoes (round objects) in calves. First, I locate the offending object and if in the cervical region I try to force it back to the mouth by use of both hands, using a sort of milking motion to urge it toward the mouth.

In many instances this procedure has removed the offending object.

If it fails to do so, or the choke is low, I immediately use the stomach tube to first locate the object, then expel it. The stomach tube has a decided advantage over the probang in this: The object (often an apple or potato) is slippery from the saliva, and the probang tends to dodge it, while the tube fits as a disc against it and tends to hold on instead of wedging beside the object. Right here let me say that I prefer a tube of large caliber (as large as you can handily pass). Then, too, if necessary, the tube will carry water or oil right to the spot you want it. The movements of peristalsis naturally carry the body onward, and with but a little assistance usually bodies that will get well down will pass right on into the stomach. In case of choke in the calf, and

the bloat that usually follows, if one is quick there is not necessity of enterocentesis; the bloat escapes through the tube as soon as the tube reaches the rumen.

My reason for using a large tube is this. A stream of given volume broadened out flows with less force than if confined, and produces less reflex contraction against the penetration of the water; also, when the pump is removed larger particles of matter will be removed without clogging the tube. This is applicable whether the tube is used as a stomach tube or as a rectal tube. I use a special steam tube *into* which a Phillips' tube readily wedges, and often have removed whole kernels of corn without clogging the tube. The larger the tube, also the more easily it grips the surface of the foreign object. In nearly fifty cases of choke in various animals only once have I found it necessary to perform a radical operation, as recorded in Merillat's Surgery; and I believe I never have drawn an ounce of blood by the use of the tube. Just one other point: Use a tube eleven feet in length. A high headed horse may take so much tube that your pump will not reach the floor.

---

THEY NEED ROOM TO TURN AROUND IN NEBRASKA.—Dr. G. R. Young, Omaha, Nebraska, ex-president of the Missouri Valley Veterinary Association, has recently rented twenty acres within the city limits, on which, he says, to use the doctor's own expression, "I will have a nice place for my business." We suggested to him that he might raise a few horses or mules, and still not be crowded. The doctor's duties have also been increased by his appointment to the State Board of Examiners for a three-year term.

MASSACHUSETTS BOARD OF REGISTRATION IN VETERINARY MEDICINE.—Secretary Babson announces that the Massachusetts Board of Registration will hold its annual June examination of two days on June 24 and 25, 1914. For particulars write to Dr. E. W. Babson, Gloucester, Mass.

THE VERY BEST PRINTED.—A Minnesota subscriber, in renewing his subscription, writes: "Enclosed find check for renewal of subscription to the REVIEW. It is the very best printed. Thank you for European chronicles and all."



## REPORTS OF CASES.

---

### IMPACTION OF THE CECUM.

By A. T. GILYARD, D.V.M., Waterbury, Conn.

The purposes of this article are: First, to apologize for having overlooked the paper on *Equine Typhlitis with Impaction*, written by Dr. Willis Wilson, and printed in the AMERICAN VETERINARY REVIEW of May, 1913. My attention was called to this valuable contribution by the Editor's note following my paper on *Impaction of the Cecum*, which appeared in the March (1914) edition of the AMERICAN VETERINARY REVIEW.

I have since read Dr. Wilson's paper with keen pleasure and much profit; and have come to the conclusion that impaction of the cecum is not rare, but that it occurs more frequently in some localities than in others.

Second, to give a brief account of a treatment which I have recently used for this disease.

In the aforementioned paper presented at last summer's meeting of the Connecticut Veterinary Medical Association, I suggested, since all purgatives had failed in my cases and the cases of which I had read at that time, that a trocar with rubber tube attached be carried in by the way of the rectum and pushed into the cecum that water might be pumped in, in an attempt to float the impacted mass.

Dr. R. P. Lyman, dean of the veterinary department of the Michigan Agricultural College, who was present, suggested that the trocar be driven through the abdominal wall instead of inserted by way of the rectum, and as I had often used this method for introducing antiferments in obstinate cases of intestinal flatulence, I determined to try it, in impaction of the cecum.

On the afternoon of Sunday, February 15, I was called to an aged grey gelding which had been colicky, with some appetite and occasional bowel movements since Tuesday, February 10. This horse had a group of melanotic tumors on the tail and anus and one in the rectum, the size of a hen's egg.

The attending veterinarian had diagnosed "cold in the bowels" and had treated for same with much linseed oil and hypodermic purgatives during the five days of illness. Although the

thermometer stood at eight above and there were few panes of glass in the several windows, I stripped and examined per rectum.

The impacted cecum was quickly located, a doubtful prognosis given and the subject taken a distance of three miles to the hospital.

At nine o'clock that evening we put the horse in the stocks, and locating per rectum the portion of cecum nearest the abdominal wall, I pressed outward with my fingers until an assistant located and marked the spot, which was one inch posterior to the last rib and eight inches below the level of the external angle of the illeum. We prepared the field and I plunged a long, fine-bore Williams trocar forward and downward. Again I explored and felt the canula inserted in the cecum, which lay about two and one-half to three inches from the abdominal wall. We then introduced with the aid of a small-bore rubber tube and a small pump seven and one-half gallons of warm water in which had been dissolved one-half pound of sodium chloride and one pound of magnesium sulphate.

The operation, owing to the smallness of the apparatus, occupied a whole hour. At 9.30, one-half hour after starting, there was a small evacuation from the bowels and at 11.30 there had been nineteen movements of the bowels, quite watery and having a very foul odor. The horse was then put in a box stall, where in the morning we found evidence of the bowels having moved three times; the stools, although soft, contained quite a quantity of incompletely masticated ingesta.

Monday, February 16, no pain, drank water and eagerly partook of three feeds of hay and oats. Per rectum the cecum could be felt to contain very little ingesta.

Tuesday, February 17, external manifestations the same, no exploration until 6 p. m., when colicky pains set in same as before treatment.

Examination at that time revealed the cecum again filled. Regretted having allowed food and repeated the treatment of Sunday night, obtaining fifteen evacuations in two hours.

I then decided to withhold all food for a few days, in hopes that the walls of the cecum would become active enough to prevent another impaction of that organ. On the 18th, 19th, 20th and 21st we gave powdered nux vomica two drams and sodium chloride one ounce twice daily. The salt created an abnormal thirst for water, and the water thus taken seemed to complete

the emptying of the cecum, which on the 18th contained some solid food, although it was not distended. During these four days the bowels continually discharged very foul smelling feces and each day the amount of solid ingesta in the cecum decreased. During this time the horse continually called for food, but none was allowed, although the external appearance of the horse showed nothing to indicate that he was ill.

On the 22d, I could find no solid ingesta in the cecum; but I was able to palpate imperfectly a hard spherical mass about six inches in diameter, which lay within the cecum, seemingly attached to the internal surface of the wall of that organ, this object responded to ballottement, and my best opinion is that it was a melanotic tumor.

As the animal appeared so well I ordered bran mash and small feedings of hay continuing the *nux vomica*.

The next day, February 23, I arose at 5.30 a. m. and went to the dog show in New York. During that forenoon the horse went down; they say that he seemed exhausted and could not be raised, so they killed him and called the dead wagon. When I arrived home on the 24th, I learned with extreme regret, not unmixed with anger, that through some misunderstanding the horse had been skinned and cut to pieces and the parts that had not been used had been buried.

Just what caused that horse to go down when apparently doing so well will always remain a mystery to me, but the fact that an impacted cecum may be emptied by this method, I have established, at least to my own satisfaction, and I hope some time to meet my fourth case that I may be able to try it again.

---

## DYSTOKIA AND A FEW CASES MET IN ACTUAL PRACTICE.

BY C. F. DWINAL, D.V.S., Bangor, Maine.

Dystokia is an unfavorable termination of parturition and may be of two kinds, maternal or foetal, the most common of which is foetal; and this occurs more often in bovines than in the equine or canine families and fortunately easier remedied in bovine than other families. Many animals with first parturition need assistance when there is no abnormal presentation or deformity in foetus, due no doubt to nervous condition preventing normal dilatation of genital organs.

Early assistance many times avoids serious trouble, and this is true in mares more than in cows, and in this we are often handicapped, since it is customary for an owner to wait or allow some one to attempt to correct trouble who is not skillful enough to do the work, and perhaps has torn or lacerated the genitals to such an extent that it is nearly impossible to accomplish the act of delivering without serious results.

I have seen the vulva and vagina in a mare so swollen by the rough work of a layman that it was nearly impossible to pass the hand through the canal, much more to deliver the foetus.

In another case I found a small portion of an intestine protruding through the vaginal wall, caused either by strong traction or by the foot of the foetus being forced through the wall.

The worst condition which I find for delivering is in an animal so exhausted either by long continued labor pains or my efforts to assist by an empiric so that the animal is unable to rise from the recumbent position or even roll up on the side, as every effort to change position of foetus is immediately followed by labor pains which force the hand suddenly back, if not entirely out of the animal. I was called to treat a case of a cow in a similar condition. Previous to my seeing it a non-graduate had undertaken to effect delivery by means of a grapple on the studding, and a set of blocks, which were attached to the calf, the cow being fastened by the neck with a chain; and from all appearances there had been some strong pulling, all to no good results; only to exhaust the cow very much.

After first giving stimulants to the cow I amputated the head, forelegs at shoulders, opened the thorax and abdomen and removed contents from each, all of which were somewhat decomposed. As the owner informed me, the cow had been due to calve six months before and supposed she had a dead calf in pasture, and did not bother to hunt for it and would have still thought so had he not seen a foot protruding from the vulva the night before, when the cow came up from pasture.

After this dissection of foetus, delivery was comparatively easy. Then I used an antiseptic douche and removed all particles of foreign matter, gave stimulants to be repeated regularly, and recovery took place in a few days.

Another case came under my care not long since. A two-year-old heifer with first calf had been in labor nearly twenty-four hours when I was called; meantime a neighbor had been endeavoring to assist her and had removed both hind legs, it being a lumbo-sacral presentation.

On examination I found it to be a large calf, and I was puzzled when I could not turn it in any way from the position it then occupied, and I could not reach the head to find out what the trouble was, so by means of the embryotomy knife I removed everything down to the head and neck, which was a long job; then I found that there were two heads grown together, and so heavy that I could not move them in the uterus.

The heifer was destroyed, as the owner did not want me to operate on her, and there was found to be grown together two heads, the union being from about the middle of maxillary bones. It presented a peculiar appearance, with two mouths, four nostrils, two large eyes, three ears, one in center of forehead being double size; it weighed thirty pounds.

A third case in a mare was very interesting to me, and the foetus was in a position which I have never seen before or since; neither have I read of anything like it. This mare was a fast pacer, and the owner expected a fine colt, so he had a man in constant attendance for six weeks prior to time of parturition, who was to call me as soon as any signs of foaling presented themselves.

Late in the evening I was called and when I arrived the head, neck and forelegs, and about half of body were present; the mare was almost frantic. She would rush around the stall and after going around two or three times would sit down just like a dog. The colt, of course, was dead.

I amputated the portion of body presenting itself and then I found the hind legs crossed under abdomen and feet were pushed up on either side, so that they were parallel with the external angle of the ilium. By drawing each one down separately, I was enabled to straighten them out; then by forcing the mass back into the uterus, and turning it over, delivery was easy. When this took place the mare collapsed, and for three days lay on a good bed of straw. Then we put her in slings for three weeks.

Outside of a ruptured perineum, which I closed up with silk (but for some reason would not stay sewed), she made a good recovery.

Cases of this kind I find very hard to correct and often require a long time, and I have been so fortunate or unfortunate as to see a great many of them; although there are many other things in veterinary practice that I would prefer to these cases.



OBSTRUCTION OF DIAPHRAGMATIC FLEXURE OF  
LARGE COLON.

BY DR. S. C. NEFF, Staunton, Va.

November 5th I received a call to see a horse five miles from the city. Upon my arrival at the place, I found the horse lying upon the sternum with both front legs extended as far out as possible; every few minutes it would roll upon its side, but would not stay in this position any length of time, but would soon resume the sternal posture; always with both front legs extended as far as possible. Occasionally it would set upon its haunches like a dog. After making a careful examination I told the owner it was a case of obstruction of the bowels, at the same time explaining to him that I considered it a very serious though not a hopeless case. I gave a drench composed of aromatic spts. ammonia 2 ounces, turps. 2 ounces, aloin  $\frac{1}{2}$  ounce, linseed oil qt.; left alc. one-half pint to be given in two doses one hour apart. Saw horse again in four hours, symptoms the same, repeated the drench given the first time, less the aloin; also gave one grain of arecoline and one-half grain of strychnine. Left one grain of arecoline to be given in two hours, 4 ounces of alc.,  $\frac{1}{2}$  to be given in quart of linseed oil in 4 hours, balance to be given in water in 8 hours. I saw horse about seven o'clock on the morning of the 6th, symptoms about the same. Repeated the drench given when I first saw him, also gave grain of arecoline,  $\frac{1}{2}$  of strychnine, leaving same to be given in 6 hours, also alc. and one quart of oil at the same time. Saw horse again in 12 hours, pain not quite so bad, but no action from bowels; repeated treatment of morning, leaving medicine to last during the night. I left telling owner that I would see horse next morning; upon arrival owner stated that horse had been restless the entire night, but in the last hour had seemed a little more comfortable. Up to this time horse had neither ate or drank. I offered it a little water, and I think it took 3 or 4 swallows. I again gave oil and stimulants, saw horse again in the evening, no action from the bowels, gave oil, eggs and milk. I kept up about the same treatment for seven days at which time his bowels began to move a little. The 8th day they were opening up well, but no diarrhea; by the evening of the 9th day of sickness his passages had begun to thicken somewhat, but pneumonia had developed in the right lung. Horse died 12 days after I began treating him. No doubt others here have had similar cases and possibly had better results from their treatment. The reason that I selected this case to write

about was to bring about a discussion in regard to the line of treatment that I gave. Whether I gave too much, too little or the right kind of treatment, during the first seven days I gave 3 gallons of linseed oil,  $\frac{1}{2}$  ounce of aloin, 8 grains of arecoline, 3 grains of strychnine, aromatic spts. of ammonia terps and nux., also  $\frac{1}{2}$  gallon of alc. and one quart of whiskey. From the 3d to the 9th day of his sickness I gave him every 12 hours  $\frac{1}{2}$  doz. of eggs and one gallon of milk, always using stomach tube both for giving medicine and feeding him. Rectal injections of one to two gallons of warm water were given every 4 or 6 hours. The pneumonia, I am sure, was caused by some of the oil entering the lung while the owner was drenching him. As owner stated that he had been having some trouble to get horse to swallow. At no time was there more than one degree of temperature until pneumonia developed.

---

### TRAUMATIC LUXATION OF THE PATELLA.

By JAMES M. COOPER, M. D. V., Cincinnati, O.

A most interesting case of traumatic luxation of the patella from the trochlea came under my observation recently.

A team of bay horses were being driven over a street viaduct, when the off horse fell on the asphalt paving. In falling he fell first on the left side, and in attempting to regain his feet, fell again on the right side. When released he regained the standing posture. On examination he carried the right leg, the foot being about two feet from the ground, in a cramped position. There was a marked prominence of the stifle joint, which stood out in a rotund manner. This prominence at the stifle was general, hard to the touch, the preponderance of which was situated externally. The patella could not be outlined, and there was absence of inflammatory phenomena. On attempting to force the limb downward, the patient manifested great pain, and each attempt in this direction was met with failure, the foot being continually kept from the ground. There was no crepitus. The animal was hauled in an ambulance to the owner's stable, where the patient was subjected to the sling. Here effort was made to correct the dislocation. This procedure was extremely difficult and painful, the patient falling in the sling with a groan. Every act of forcible manipulation met with no success, the leg remained raised, and the cramped attitude constant.

Owing to the unique character of the case, it was decided to

let the animal rest, and advised hot fomentations applied to the stifle joint, and later the application of an anodyne liniment. Next day there was no change, and every effort at correction met with no result. On the third day the foot would come down to the coronary band of the opposite limb, and sometimes rest there, but otherwise there was no change in the condition. At this period consultation was sought, and the diagnosis confirmed of outward dislocation of the patella. United attempt was made to correct the luxation, but without success.

Being at a loss to bring the joint into its normal position, it was decided when treating the patient, for the attendant to adhere to our instructions, and forcibly manipulate the parts, and to move the affected limb backward, forward and from side to side, with the possibility of bringing the patella back into its place. On the fourth day, while engaged in this practice, the attendant reported hearing a snap, and the leg came down suddenly. On examination later the patient displayed extreme lameness, the stifle being greatly swollen and painful, and the animal would walk on the toe like an azoturia patient. On palpating the stifle joint, the animal would evince great pain by grunting. The vasti and rectus muscles were tense and contracted. The stifle was carried outwardly. The next two days showed quite a modification in the patient's condition, but continued to walk on the toe as described, and with abduction of the limb. Ten days later lameness disappeared, and the swelling nearly all gone. In fourteen days, nothing could be discerned, and up to the present time, five months since the accident, the animal performs his wonted duties, without any attending sequel. Judging from the scarcity of case reports regarding this condition it must be of rare occurrence. This instance was a genuine case of patella luxation, without any complication, as fracture or ligamentous tear, as the subsequent perfect recovery would seem to indicate. In conclusion I would suggest, in consequence of my experience, the proper course to pursue would be, when cases of this kind present themselves, to cast the animal, and administer an anaesthetic and forcibly reduce the luxation, which I am confident can be easily done.

---

### ANOTHER MONSTROSITY.

By Dr. H. BERGH, Suisin, Cal.

Responding to a call to attend a cow (a large Durham), I found her straining considerably. She had delivered a calf early

in the morning and of course the attendant thought everything was O.K., until he found out that she was again in distress. On arrival I examined the cow and found another foetus in her.



Within an hour I had the calf delivered, and by looking at the dead calf, discovered something very unusual about it. As the picture shows, it had only one eye, between the ears. It had no upper jaw, the lower jaw was turned upward and contained three large teeth; had a large tongue, one large ear and one small one. A very short and heavy neck. The tail was only  $2\frac{1}{2}$  inches long. Everything else about the calf was perfect.

---

ENORMOUS CYSTIC CALCULUS IN A BITCH.

BY HARRY FREDERICK, D.V.M., Suffern, N. Y.

In looking over literature on calculi, I find that those occurring in the urinary bladder of dogs are usually small, and there is likely to be more than one present in the bladder so affected. The case occurring recently in my practice was directly the opposite.

The patient was a five-year-old undersized shepherd bitch and quite fleshy. The owner said that she had been passing blood in the urine for at least six months and possibly more, but he had noticed nothing else abnormal.

Examination by palpation of the abdomen revealed very plainly a hard object encased in the bladder. *Diagnosis*—*calculus*. The owner was told that an operation was the only treatment indicated and that that might fail on account of the size of the calculus. The operation was not immediately performed. In a few days the patient was suddenly taken very ill and died as a result of uremia and septicaemia.

I should also add that I observed the animal a few days before her death and that the urine had a very offensive odor and was passed often, the blood appearing in the last portion only.

Upon post mortem a calculus of the following description was found: Shape, oval; size, 2 in. by  $1\frac{5}{8}$  in. by  $1\frac{1}{4}$  in.; weight, 57 grams (2 oz. avoirdupois); surface, rough (sand-like); color, brown. The mucous membrane of the bladder was badly lacerated and inflamed and the walls of the organ much thickened.

---

SCHOOL FOR HEALTH OFFICERS AT HARVARD.—Beginning with the past fall, Harvard University and the Massachusetts Institute of Technology are to maintain in co-operation a school for public health officers. The object of the school is to prepare young men for public health work, especially to fit them for administrative and executive positions in health organizations. The requirements for admission are adequate instruction in physics, chemistry, biology and French or German. The medical degree is not a pre-requisite, but the administrative board strongly urges it.

WOULD HAVE GOOD WORK APPRECIATED.—An Ohio subscriber says, in renewing his subscription: "Good work should be appreciated in every field. Hence I have great pleasure in renewing my subscription to the REVIEW."



## ABSTRACTS FROM EXCHANGES.

### ENGLISH REVIEW.

By PROF. A. LIAUTARD, M.D., V.M.

A CASE OF PSAMMOMA [*Capt. B. A. Jarvis, Army Veterin.*].—This aged mare has had abscesses of the off shoulder and later, after an attack of impaction of the stomach, but for a long time has been in good condition. Returned to her work, she has fits of sulkiness, lasting two or three days to a fortnight. Sometimes she is taken while at work, stopping, unwilling to move for half an hour or more and then walks quietly to her stable. She seemed, between the attacks, very quiet and presenting nothing abnormal. Left in a box, she stands sometimes with her head near a corner. When the sulky fits became more frequent, she remained for hours in one position, head down near the ground, all legs drawn together. She frequently had rigors. Often she stood quite still, with a straw in her mouth. She for days kept turning her head and neck in an upward and backward direction towards the near side. There was no other peculiar symptom. Psammoma being diagnosed, the mare was destroyed. A large psammoma about the size of a large goose's egg was found in the left ventricle of the brain. Also a small tumour in the right. It was as big as a walnut.—(*Vet. Record.*)

POTATO POISONING IN CATTLE [*E. McSweeney, M.R.C.V.S.*].—Calves from seven to nine months have for a week fed once daily with heavy food of small cooked potatoes and a little Indian meal, with hay, grass, etc.

Two get very sick. They passed a small quantity of fluid feces, refused food. One is found stretched apparently unconscious, with corneal reflex absent. Slow, almost imperceptible respiration. Another is lying on the chest, head turned to the right. He is drowsy and semi-conscious. Breathing regular and at times snoring. A subcutaneous injection of strychnia ( $\frac{1}{2}$  grain) was made to both and 15 minutes later one of ten ounces of hot normal saline solution. The rumen of both calves was punctured, and foul-smelling gas escaped. Soon the calves began to show some improvement, and then received a drench of oil with pint of very strong tea afterwards. This was given again

two hours later. The next morning the calves were found in good health. The food was changed and no more cases of sickness returned.—*Vet. Record.*)

INTERESTING ABDOMINAL CASE [*Prof. F. Hobday, F.R.C.V.S.*].—Pedigreed bull bitch had metritis which, rebellious to treatment, necessitated the removal of the uterus and ovaries. This was done under the influence of morphia, with the abdomen painted with tincture of iodine. The muscles were sutured with catgut and the skin with silkworm gut. Nine days after, while everything seemed to progress well, the bitch showed uneasiness and when she is examined a piece of the omentum is seen protruding from the wound. The dog was secured and the omentum carefully excised and the stump returned in the abdomen. One of the ligatures of the muscles had given way, and through the opening the omentum had slipped. The muscles were resutured again, also the skin and the wound dressed with iodine and antiseptic cotton over, kept in place with bandage. In a few days the cicatrix was perfect.—(*Vet. Journ.*)

A PUZZLING CASE [*E. Wallis Hoare, F.R.C.V.S.*].—Five-year-old Labrador bitch is lame on the left fore limb. A week before she was struck on the right flank by the front of a motor. Eight days after, when taken for a walk, while going she stopped, sat down, raised her left fore paw from the ground and walked home lame. After a few hours rest she appeared all right. This manifestation returned on several occasions. No lameness is now present, but the leg is icy cold and pulsations of the radial artery are almost imperceptible. Walked a short distance the lameness appeared. Examination of the heart shows cardiac impulse very weak, and the sounds difficult to detect. Pulse of the femoral is very irregular. Animal is in good condition and has good appetite. Treatment: Digitalis and iodide of potassium are prescribed with massage and liniment on the affected limb. A week later the condition of the heart is improved, then the pulse was felt at the radial artery and the report was that the lameness has also disappeared.—(*Vet. News.*)

UNCOMMON RENAL CONDITIONS IN CALVES [*W. J. Young, F.R.C.V.S., D.I.S.M.*].—Two conditions are not infrequently met with.

*Fibro-plastic nephritis.*—Erroneously named, as nephritis is absent. It is met only in calves and as a rule both kidneys are af-

fects, the lesions being in the form of disseminated white patches on the surface. Sometimes there are depressions over the region of the lesions and at other times the kidney is atrophied. On section the white spots are wedged shaped, with the base of the wedge towards the cortex. The cause of this condition is obscure, perhaps of microbic origin, always it has not been proved; perhaps the excretion of toxic substances say others. It is also supposed that it is the result of incomplete development. High feeding has also been considered as the cause. The condition must not be mistaken with tuberculosis.

*Melanosis.*—Was found in the kidneys of calves from three to six weeks old. The deposit was confined to the kidneys, which were of normal size and consistency. The pigment was in the cortical portion of the organ, the pelvis being normal.—(*Vet. Record.*)

AN UNUSUAL DISLOCATION [*T. O. Richardson, F.R.C.V.S.*].—Concise record of the case of a bay hunter gelding which in a run with the Cheshire hounds jumped quite a small fence and sustained such an injury that he was shot immediately. Both metatarsals were protruding through the skin on the anterior aspect of the fetlock. Capsular and lateral ligaments of the fetlocks being ruptured. On the off leg the suspensory ligament was divided, the extensor and flexor tendons being intact. On the near leg the extensor tendon was ruptured, the suspensory ligament and the flexors being intact.—(*Vet. Record.*)

TWIN FOETUSES [*J. Wright Conchie, M.R.C.V.S.*].—A pregnant three-year-old heifer is in labor since several hours and is in extreme exhaustion. On examination it is found that a very large calf is in breach presentation in a very small pelvic space. Besides, quite a number of feet, six or seven, are felt. They were fore and hind limbs. One first pair of hind legs was drawn out and removed with part of the foetus at the loins. The other hind legs were treated in the same way and as some fore legs had also been removed, attempts to turn over the foetus and secure the head failed us, the poll only could be reached. As the case was hopeless and the animal pretty well worn out, she was destroyed. The bodies of two calves joined at the sternum were found at postmortem, with the forelegs round one another's necks and feet extending backwards. The union seemed to be made up of cartilage and fibrous tissue. A photograph of both heads illustrates the report.—(*Vet. Record.*)

## FRENCH REVIEW.

By PROF. A. LIAUTARD, M.D., V.M.

FOREIGN BODIES IN DOG'S STOMACH [*Prof. Coquot*].—After a few general remarks on the subject the following case is recorded.

A fox-terrier is taken out for a walk by an office boy who amuses himself in throwing stones in a river close by. The dog, excellent swimmer, jumps in the water and goes after the stones. The next day he is sick, has all the symptoms of colic of carnivorous animals, vomits and throws up saliva, viscuous glairs and one stone. The abdomen is painful, and by auscultation deep, loud noise is heard, due to the presence and knocking of stones which had been swallowed. An emetic is given, two large stones are thrown up, successively followed by two others. During the night the dog vomits again two more stones, and the next morning is found in perfect health. The seven stones weighed together 460 gramms, and their size varied between that of a hen's egg and a large nut.—(*Rec. de Med. Vet.*)

METHYLENE BLUE IN THE TREATMENT OF WOUNDS [*Major E. Larieux, Army Vet.*].—Peroxyde water and tincture of iodine are excellent for the dressing of all wounds, but for the author methylene blue is superior. He has used two formulas, one is composed of blue 2 gramms, alcohol at 90 degrees 10, 5 per cent. solution of phenic acid, 100 gramm, the other has 3 gramms of blue, 5 of borax, 120 of distilled water. Larieux has used either with the greatest results; in a very short time he has been able to return horses to work. He mentions among the cases he restored by that treatment, contused wound of the fetlock, fistulous withers, broken knees, fistula of the croup due to the prick of a stable fork, deep wounds of the canon, superficial and extensive saddle and harness wounds, etc. The drug is much cheaper than any others and the only objection to its use is the coloration it leaves on the tissues to which it is applied. But with a little care and attention that can be reduced to the minimum.—(*Ibid.*)

INTESTINAL CONSTRICTION AND OCCLUSION WITH DISTEMPER ORIGIN [*Assistant Major Bonaud, Army Veterinarian*].—Six-year-old half bred stallion had distemper which had relapsed two months after. A few days after the beginning of this second attack he had mild colic with complete absence of feces. Soon however the symptoms become more severe. The horse is

restless, looks at his flank, is covered with profuse perspiration, lays on his back often. Rectal examination shows an organ empty, but the cause of the obstruction is not detected. The condition soon gets worse, colic more severe, general aspect is very bad. Through the rectum, always empty, a large swelling is finally detected in the dorso-lumbar region. It feels slightly elastic and almost painless. Notwithstanding rectal injections, the administration of pilocarpine, of caffeine, the horse died after an illness of 12 hours.

At the postmortem the abdomen was the seat of the principal lesions, viz.: 10-12 litres of sero-bloody fluid, omentum congested, the intestinal circonvolutions are here and there adherent to the trunk of the mesenteric and to a round mass which is a large abscess of the mesenteric lymph glands, containing a great quantity of thick, yellow pus. The small intestine runs through the thick walls of the abscess and the three arterial fasciculi of the great mesenteric are also involved with them.—(*Rev. Veter.*)

CANINE PIROPLASMOSIS [*L. Naudin*].—Scottish setter is ill since a few weeks, has lost a great quantity of flesh, and is very anaemic. There is no fever, no sugar in the urine and very little albumin. He has a great many fleas over his body and the examination of the blood revealed a number of hematies with piroplasms. The diagnosis is certain. For one month the dog is treated with chlorure of calcium and injections of methylarsenate of soda with very little benefit. Finally, three days apart, two intravenous injections of 10 c.c. of a solution of trypanblue (1 p. 100) are made and as the result is not entirely satisfactory, two more injections are made two weeks after of 25 grammes of the same solution. Five weeks after the progress was well marked, the condition improved gradually and finally clinically recovered, was returned to his owner. However for some time after hematies with parasites were found in his blood, but the piroplasm were in state of degeneration, viz., with a globular form.—(*Rev. Gen. de Med. Vet.*)

TUBERCULOSIS IN GOATS [*Mr. Chausse*].—It is accepted that goats are rarely affected with tuberculosis; but perhaps this is due to the possible error made between the lesions of vermiform broncho-pneumonia and the only few typical cases that had been observed. Prof. Moussu however has demonstrated that goats living in places with tuberculous bovines could easily contract tuberculosis. **Closer examination of the lesions would demon-**



strate that after all the disease is not so rare. The writer describes the lesions he has found in his capacity of Sanitary Veterinarian in an adult she-goat, where the lungs, after being affected with pneumonia, had besides characteristic lesions of tuberculosis. The bronchial and mediastinal lymph glands were diseased also. Numerous tuberculous bacilli were found in the glands and in the pus of the pulmonary abscesses.—(*Hyg. de la Viande et du Lait.*)

ATLOID HYGROMA IN DOG [*Prof. Coquot and Lebarque*].—This is a very exceptional affection in canines, say the authors, they have found no record in their French literature.

One year old setter had two swellings, occupying a symetric situation, a little below the poll, on each side of the neck. The history of the lesion is unknown, but it is not traumatic. The swellings are as big as the fist, occupy the lateral faces of the 3d and 4th cervical vertebrae, they are distinct one from the other, painless, fluctuating and mobile under the skin. By pressure free riziform or hordisform granulations are felt in their cavity. The diagnosis being established of an atloid hygroma, puncture of the tumors was made, about 250 cubic centimeters of fluid were taken off, and their cavity injected with iodurated water (1 in 50) 30 c.c. in each, followed by a massage of 10 minutes. The result was that four days after the tumors were replaced by two iodurated small masses which gradually disappeared.—(*Rec. de Med. Véter.*)

BOTRYOMYCOSIS OF THE UPPER LIP—SUBMAXILLARY AND RETRO-PHARYNGEAL LYMPH GLANDS IN A HORSE [*J. N. Ries, Governmental Veterinarian*].—Five-year-old gelding has a diffused induration of the upper lip without apparent cause. There is difficulty in the prehension of food. Soon hard and painless swelling of the sub-maxillary glands makes its appearance. A blister applied is followed by the formation of several small abscesses. The upper lip became very hard, of the size of the fist, it is indurated. It shows many little tumors from which pus can be squeezed out. The general condition gives way from want of nourishment. Iodide treatment externally and internally is prescribed. After a few weeks the retro-pharyngeal glands become involved and the treatment seemed of no benefit; the animal was destroyed.—(*Rec. de Med. Vét.*)

POISONING WITH SULPHUR [*Mr. Brissot*].—Five pounds of sublimate sulphur are mixed carelessly with moist bran and given to five horses for their evening meal. One fine mare, three years

old, ate the largest share of it. The next morning she has diarrhoea, the feces being mixed with yellow greenish fluid. She can scarcely stand up or walk; she staggers, the features are depressed, the abdomen retracted, skin cold, pulse imperceptible, temperature 36 degrees. She has now and then muscular shiverings and repeated nauseas. Prognosis is serious, symptomatic treatment prescribed of stimulating frictions on the legs and body, caffeine and ether. The animal died a few hours after. Post mortem revealed nothing abnormal in the thoracic or abdominal cavities until the stomach and intestines were open. While a strong odor of rotten eggs came out, these organs were found filled with a yellow greenish semi-fluid alimentary mass, from which came out a strong odor of sulphureated hydrogen. The mucous membranes were yellow and covered with sulphur powder. The cause of death was evident and it was only then that information was given of the peculiar meal the animal had had.—(*Ibid.*)

#### BELGIAN REVIEW.

By PROF. A. LIAUTARD, M.D., V.M.

LARGE OVARIAN MYXO-SARCOMA IN A SLUT [*Prof. Hebrant and Adjunct Antoine*].—Small size fox terrier slut, about 8 years, is in good condition, but has an enormously developed abdomen. She is not pregnant, and ascitis is at once suspected. Examination of heart, urinary analysis and of the liver does not reveal troubles in their functions. Several exploring punctures are made and give no result. Cyst of the ovary is suspected and laparotomy performed. The abdomen open exposes a mass having the appearance of a pregnant uterus and it is so large that the incision of the muscles has to be enlarged, when it can be brought out. It is an ovary, as large as a man's head. It was removed, the abdomen closed and after a week the slut had recovered. The diseased ovary weighed 3 kilos 750 gram (over eight pounds and a half) and on histological examination proved to be a myxoma with sarcomatous centers.—(*Annales de Belg.*)

BASEDOW'S DISEASE IN A DOG [*By the same*].—Rare in domestic animals, it has been seen by the authors in a dog, 3 or 4 years old, where the ocular troubles consisted in marked exophthalmia. This had been observed before, but had disappeared with rest and iodurated treatment. A few months after the same troubles returned; exorbitated globes, hyperhemia of the conjunctiva, staring glances. The character of the animal had

changed; he had become irritable. Muscular twitchings were frequent, the pulse accelerated, yet the condition remained good. Another iodurated treatment was instituted. A month after there was corneal ulcerations, double cataract and the returns of all the symptoms of Basedow's disease. The dog had convulsions and died shortly after. Nothing characteristic was found at post mortem, except hypertrophy of the thyroid bodies, which had a gelatinous aspect.—(*Annal. de Bruxelles.*)

PORRIGO BY MICROSPORUM IN DOG AND CAT [*Prof. Hebrant and Antoine*].—Gruby's favus, due to *Microsporum Andouini*, is rare in animals.

A dog about five years old had cutaneous disease on the flank and left thigh. There were five round or oval spots, 2 or 3 centimeters in diameter, where the hairs were shorter, broken and partly off. On these places the hairs were short, of a dull color, greyish, and under them the epidermis was covered with grey, dry scales, forming a very thin crust. In examining the hairs, it was found that the roots were enveloped from their base up to their point of exit with a whitish covering and when they were placed under the microscope the hairs were seen without root, broken in their follicle and the white cover which surrounded them was found formed by spores, packed against each other, and presenting characters similar but slightly different from those of true favus. It was a true case of Porrigo by the *Microsporum* of Gruby, affection which the authors believe is contagious to men, cat, dog and probably to cattle.—(*Annales de Belg.*)

CONTAGIOUS ABORTION IN CATTLE causes an annual loss of \$3,500,000 in the State of Wisconsin alone is the conservative estimate of careful observers, according to the *Press Bulletin* of the University of Wisconsin. The veterinarian of to-day is surely facing serious problems; none more so than this one.

MOST SCIENTIFIC AND PRACTICAL VETERINARY PERIODICAL PUBLISHED.—A subscriber in Vancouver, B. C., in renewing his subscription, writes: You have the most scientific and practical veterinary periodical published. As has been said: "May your shadow never grow less." May this year beat all records for you, so that you may feel your efforts have been crowned with success.

6529

## CORRESPONDENCE.

---

Washington, D. C., March 5, 1914.

*Editors, AMERICAN VETERINARY REVIEW, New York.*

If possible, I would appreciate it if you could use the enclosed letters, one from the Hon. J. B. Moore, Counselor of the Department of State, and the other from Prof. Miessner, Director of the Hygienic Institution of the Veterinary High School in Hannover, for publication in your next issue. These letters indicate the wonderful advantages the party is to receive from the authorities, as well as from our professional brethren abroad.

Very sincerely,

ADOLPH EICHHORN.

Enclosures.

(Copy.)

February 2, 1914.

DR. ADOLPH EICHHORN, Secretary, National Committee of the United States, Tenth International Veterinary Congress, Department of Agriculture, Washington, D. C.

SIR--The department acknowledges the receipt of your letter of the 12th ultimo, in which you request that certain diplomatic officers of the United States in Europe be instructed to extend to a party of veterinarians who propose to tour Europe in connection with their attendance at the Tenth International Veterinary Congress to be held at London in August next such assistance as will assure the party all desired attention and courtesies.

In compliance with your request the Department has instructed its diplomatic officers in Austria-Hungary, Belgium, France, Germany, Great Britain, Italy, The Netherlands and Switzerland to extend to the persons making the tour such assistance as may be consistent with their official duties. I am, sir,

Your obedient servant,

For the Secretary of State,  
(Signed) J. B. MOORE, Counselor.

(Translation—Copy.)

DR. ADOLPH EICHHORN,  
*U. S. Bureau of Animal Industry.*

MY DEAR COLLEAGUE—Through the various publications I have been informed that the American colleagues contemplate a travel tour of the various countries of Europe at the occasion of the Internantional Congress. We greet this project and it will afford us in Germany the especial honor of showing to our dear colleagues our institutions and the results of our research as far as possible. In order that they may be supplied everywhere with proper guides, which is absolutely necessary for such an undertaking, I would suggest that you prepare an accurate itinerary and send the same to me. I will then take the necessary steps to have your plans brought sufficiently to the attention of the proper authorities. At the same time, as acting member of the faculty of the Veterinary High School of Hannover, I would express the request of having your party visit our establishment, which is most modernly equipped, and you should not pass it in your round trip.

In hopes of receiving a detailed reply from you at an early date, I remain, with collegual greetings,

Sincerely yours,

(Signed) Meissner.

Fargo, N. D., February 7, 1914.

*To the AMERICAN VETERINARY PROFESSION:*

THE LONDON CONGRESS AND CONTINENTAL TOUR.—Americans have been so busy with the building of a great nation that they have had little or no time to concern themselves very much about what other people were doing and in consequence have not always been able to fully realize that the march of progress in the old world has also been going on.

In addition to this factor, the broad expanse of ocean separating us from other peoples has more or less isolated us and exposed us to the danger of becoming self-centered.

Europeans, on the other hand, always have had the opportunity to see what their neighbors were doing. The short distances made travel from one country to the others possible for great numbers of people and as a result they became acquainted and could profit at first hand, by one another's achievements.



This has been the case with the veterinarians not less than with other professions, and this factor certainly contributed as much as any other to the splendid achievements of our European colleagues.

Science knows no boundaries, knows no nationalities; it is something of all men and for all men, and with this in view the scientific professions have always striven for a certain degree of international solidarity. Among those professions ours also has long felt the need of meeting our fellows from other lands face to face to discuss with them our various problems, to organize ourselves for professional advance and to strengthen the faith in our work.

This need for exchange of opinions, for meeting our colleagues of other nations and the desire to show the world of science that the veterinarian also has to be reckoned with, brought about the periodic gathering of veterinarians from all over the world under the auspices of the International Congress of Veterinary Medicine.

This year will again witness such a congress. As already announced, it will meet in London during the early part of August.

The fact that it meets in an English-speaking country should be an additional reason for a large American attendance. But even without this, we believe that the time has come for American veterinarians to join in the efforts undertaken by the International Congress.

Ours occupies a prominent place among the nations and this profession of ours should take its part in maintaining that place by representing our country when the veterinarians of the world gather in conference for the sake of progress and advance.

At the coming congress there should be a liberal sprinkling of North-Americans, while the membership list should certainly contain a great many names from this side of the Atlantic.

No doubt, many of us will not have the time to make the voyage, but this should not be a reason for not giving the London Congress a most liberal American support. The three or four volumes of printed proceedings alone are worth many times the amount of the membership fee, as the papers and discussions often constitute expressions of the best opinions on topics and problems of the greatest interest to us all.

And what a glorious opportunity is offered to those who can attend, when we consider the tour on the continent organized

by Dr. Eichhorn. Without mentioning the charms of European travel, without mentioning the broadening influence of such travel, the thought alone of a body of American veterinarians visiting the great veterinary centers of Europe impels itself upon one as something of the greatest importance to our own professional progress.

The participants of this trip will, upon their return, bear me out, when I state, that Europe offers us a great many valuable lessons, which we may take to heart without being less American for it.

The magnificent veterinary institutions, the great clinics and the splendid laboratories will be a revelation as well as an inspiration to many, and the fact of having seen them in operation cannot be without its influence upon our own advance.

The greater part of the itinerary projected by Dr. Eichhorn is known to me by personal observations, and I must admit that a better one could not have been devised. It takes the traveler not only to the best of veterinary Europe, but it offers likewise a most glorious opportunity for seeing the most splendid things which Europe can offer to its visitors.

And last but not least, the trip is organized especially for the comfort of those not accustomed to European travel. With Eichhorn as a guide, a competent interpreter will always be on hand to help out those who are not familiar with the continental languages, and the fact that this interpreter is a veterinarian himself will add materially to the pleasures and profits of the trip, not to speak of his pleasant personality. Where Eichhorn's smile lights the way, a good time is as good as guaranteed.

Both congress and continental tour should especially appeal to us and here's hoping that many will avail themselves of this opportunity.

L. VAN ES,  
Chairman, National Committee of the United States.

---

Baton Rouge, February 23, 1914.

*Editors, AMERICAN VETERINARY REVIEW, New York.*

THE EUROPEAN TOUR.—Few opportunities present themselves to veterinarians on this side of the Atlantic to visit the great State schools and other institutions of allied nature on the European Continent, and the prospective tour previous to, and in connection with, the Tenth International Veterinary Congress in London next August should certainly be availed of by everyone

who can conveniently make the trip. In fact it will repay anyone, even although he may be put to some little inconvenience, as such an opportunity may never occur again within the lifetime of those who may now have it within their power to go.

Of course the International is of itself sufficient incentive, but when there is the added opportunity of visiting the old and well-equipped Continental and other schools, from old Lyons down, and the various hygienic institutions of the Continent as well, the trip should be doubly tempting, and is the chance of a lifetime to see personally what is going on professionally in the old world.

As an educational opportunity for the veterinarians of North America, this tour could not possibly be surpassed, especially as all, or the great majority, of those making the trip will be of the same profession and will be in a position to visit and discuss together things which they see, and which are of mutual interest.

Besides, there is nothing like rubbing up against others in other countries and seeing what they are doing to broaden one's conception professionally. In the absence of this wider viewpoint, one is very apt to become contracted in one's notion of things and imagine that the world hinges around our own little bailiwick.

To mix with the profession in other countries has the tendency to "relax" this idea and make us realize that other parts of the world are doing things as well as ourselves. To be able to draw comparisons from actual observation is an excellent thing; and even if after all we should find that matters, professional, in Europe are not ahead of us on this side of "the pond," we get the satisfaction of knowing, having seen them for ourselves, that such is really the case.

Many similar tours have been made by men in other professions and lines of work, and the general consensus of opinion has been all in their favor educationally, in addition to the pleasure of the trip itself.

It is to be hoped that as many as possibly can may take advantage of the coming European tour. The expense is extremely reasonable; the educational value is beyond computation; and the sight-seeing feature a rare opportunity.

W. H. DALRYMPLE, M.R.C.V.S.

Stony Point, N. Y., February 27, 1914.

*The Editor AMERICAN VETERINARY REVIEW, New York City.*

The time has come to compile a ready reference book on *What Not to Do*. Such a work may or may not presuppose a

veterinarian's knowledge of what to do, but should precisely point out all those things that must not be done.

Notwithstanding the thoroughness of our training, there is not a practitioner who fails to have cases that require treatment which has not come to his notice before—either in books or otherwise. It is particularly for these cases that a ready reference book would be invaluable.

Now if there were such a book, conveniently arranged, with all the things that should *not* be done clearly set forth with reasons, it is plain that one would be in a far better position to know just what to *do*.

No doubt there are some among us who will content themselves with saying that we were supposed to have learned all this at college. I reply yes, but this particular subject has been very much neglected. A great many domestic animals, man included, are dosed into the world and dosed out of the world. The same can be said of surgery in using the knife. A practitioner should use as much judgment in withholding drugs from his patients as he uses in employing them. The same judgment is needed to prevent hasty and unnecessary operations. The most proficient must admit that there is too much uncertainty about the outcome of our impromptu treatment.

If there is such a book published as I have just described I shall greatly appreciate it if some one will let me know where to obtain it.

Yours very truly,

ROLAND T. KING, D.V.S.

---

Pioneer, Ohio, March 8, 1914.

Editor, AMERICAN VETERINARY REVIEW, New York.

DEAR SIR—I would like to ask through your columns if any one of your readers have found a satisfactory deodorant for removing scent from hands and arms after removing a retained placenta or a putrid lamb, calf or colt.

Yours very truly,

CHAS. F. WOLF, D.V.M.

---

NOTE.—We have found aromatic spirits of ammonia very valuable in removing offensive odors from the hands and arms. After thoroughly washing, pour small quantity in palm of hands and rub it over hands and arms and allow it to evaporate. If well saturated the odor will disappear. That has been our experience in a city practice, where of course we have had no opportunity of applying it in the conditions cited above; but believe if the hands and arms are thoroughly washed and the nails thoroughly scrubbed out with a brush, the liberal use of aromatic spirits of ammonia will be effectual there also. We shall be glad if some of our readers in country practices will answer Dr. Wolf's question.—[EDITOR.]

## ARMY VETERINARY DEPARTMENT.

---

### DEATH OF ONE OF THE AGED ARMY VETERINARIANS—APPRECIATIVE TRIBUTE TO HIS LIFE.

The *Kansas City Star* of Tuesday, February 4, 1914, reported the death, in his sixty-sixth year, at 3418 Wayne avenue, that city, of Dr. W. H. McKinney, for ten years Veterinary Inspector of Meats for the Subsistence Department of the army, and for two years, since the amalgamation of the Subsistence, Pay and Quartermasters Departments, for the Quartermaster Corps. Dr. McKinney graduated at the Chicago Veterinary College in 1888, and was amongst its earliest students, following to the college his cousin, Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, who graduated in 1886. For a time he served as veterinary inspector of the Bureau of Animal Industry; but his best work was done for the Subsistence Department of the army at Kansas City. After the subsidence of the Spanish War Meat Scandal in 1901, he was one of the first two men (Dr. C. W. Johnson being the other) to be transferred from the Bureau of Animal Industry, and he was placed in the thriving packing center of the Missouri Valley to supervise the preparation of all army meat supplies there, as a preventive of the renewal of conditions which might lead to further scandalizing of the army.

Dr. McKinney was known by many packing house men in Kansas City, with whom he came in contact, as an unquestioned expert in his work. So faithful, loyal, conscientious was he that never in all those twelve long years that he served under the series of strict purchasing officers, like Majors Stivers, Lawton and Grove, was he ever criticized, or the products prepared under his supervision found seriously at fault. Kansas City ranks next to Chicago as a meat purchasing centre for the army, and probably during his service as much as fifty million pounds of meats passed through his hands, representing millions of dollars of money from the subsistence appropriations for the army. Yet in the handling of these supplies, Dr. McKinney was found faultless.

He was a quite man, never showy, noisy, or wishful to draw attention to himself. But he was stout-hearted, a man of sinewy character; drastic and brusque of speech when duty demanded it. Though he was a civilian, thus never in the military establishment,



he was a man of military bearing, square, straight, firm of step, striking his heels hard and sharp on the sidewalk like the wilful man he was. His strong figure, his firm step, his bearing, his penetrating eyes told those with whom he dealt for the army that here was a man not to be trifled with. It was the work of such men as Drs. McKinney and the late C. W. Johnson, the first civilian veterinarians appointed to the Subsistence Department of the Army, that brought the veterinary profession into favor with the commissioned subsistence officers of the army and who made army meat inspection a perpetuity of that service. Small wonder is it, therefore, that the high-ranking officers of the supply division of the Quartermaster Corps favor the commissioning of their meat inspectors. Good work has won its way, and it has won it through the careers of these pioneers in this branch of work for the army, Drs. McKinney and Johnson.

In the last few years of his life Dr. McKinney had the keenest interest in the Army Veterinary Service Bill. Only two weeks ago, though because of weakness of the heart he could only sleep in a half-sitting posture, he took his pen and wrote me of his confidence that the bill would pass in the present session of Congress, and he supported it in every way in his power. Sixty-four is the age of enforced retirement for army officers, and, as he was past sixty-five, it was his hope that when the bill passed he would be commissioned and immediately retired. His death prevented this hope from realization. But it has a lesson for us, the living—it is that we as a profession should well consider and bear in mind, when pushing this measure on which our hearts are set, the aged men who for many long years have given their lives to principle, whose whole nature has gone into the conviction that their professional work for the army, though it might be unnoticed, would, if done with conscience, bear fruit in full appreciation of those who followed after them.

When the Army Veterinary Service Bill passed the House on the unanimous consent calendar January 6, 1913, on account of the objection of Republican Floor Leader James R. Mann, the retirement clause of the bill was struck out. If the bill had finally passed at that time in that form, this aged servant of the Government of whom we write would, because of age and consequent physical infirmity, have been thrown out of the service without retiring rights. We must not permit this raw injustice and must not allow ourselves to push the bill regardless of such men as Dr. McKinney, and, I believe, two other men of the Quartermaster Corps, U. S. Army, still on duty, though older than he was.

The retiring clause of the bill is an essential part of its fabric. To the glory of Dr. McKinney be it said that though Congress so mutilated the bill of January 6, 1913, he still had faith that justice would finally prevail and he unhesitatingly supported the Hay Veterinary Corps Bill H. R. 4541.

If we adapt the words of Lincoln, the last lesson from his life for us, the living, is to be dedicated anew to the unfinished work which he fought for and assisted so far nobly in advancing. It is for us to be dedicated to the great task remaining before us—that from our honored dead we take renewed devotion to that cause for which he gave the last full measure of devotion; that we here highly resolve that an army veterinary law, just and merciful, shall be passed which will give prowess to the young men serving our country, dignity to our men in maturity, and show consideration for our men bowed down under the burden of years, holding in remembrance the passing of the man who has just gone to his long home while the mourners uphold his faith in the cause uppermost in his mind when he departed.

GARRISON STEELE, M.D., D.V.M.

---

### A LITTLE OF THE WARMTH OF HUMOR FOR OUR CAMPAIGN.

Let us not look glum. Keep good-natured. Keep smiling. Committees are committees. They must do their work. Committee work to us is torture as it delays movement.

VEST POCKET ESSAYS, BY GEORGE FITCH.

#### *Committees.*

A committee is a cold storage warehouse for business. There are over ninety-million committees in this country, of one kind or another. They hold several meetings each per year. At these meetings enough talking is done to sweep the entire State of Texas with a devastating cyclone of carbon dioxide. Sometimes a committee will also do some work, but only when there is nothing more to talk about.

Committees are a great convenience. It would be impossible to end any business meeting without appointing a committee, for in this case the meeting would have to do the business itself. After a man has managed a few hundred public meetings he can't

get his furnace banked at night in his home without appointing himself a committee to attend to the matter and report at some future meeting.

There are many kinds of committees, including executive committees, committees of the whole, committees of one, finance committees and standing committees. There are also legislative and congressional committees. The business of these last two committees is to sit on new legislation with all the fervor and patience of a hen trying to hatch a granite doorknob. After a man has served on legislative committees for a few years he can't attend to his furnace at home at all. He refers it to a committee, kills the bill and his wife has to do it.

Committees are composed of two parts—the chairman who does the work, and the members who get their names in the newspapers. The committee habit has the nation firmly in its grip and the only way to avoid being appointed on a dozen a year is to attend all possible meetings and refuse in a loud, impressive tone of voice on the plea of important business affairs.—(*Chicago Record Herald.*) G. S.

## PERIODICALS RECEIVED AT THE REVIEW OFFICE.

Semi-Monthly Bulletin—Live Stock Sanitary Board (Penn.)  
 Bulletin Washington State Agricultural College.  
 Canadian Medical Association Journal.  
 Quarterly Bulletin—Chicago Veterinary College.  
 The Bacterial Therapist.  
 The Veterinary Journal (London).  
 The Live Stock Journal.  
 The Pacific Dairyman.  
 Hoards Dairyman.  
 Farmers Advocate.  
 The Breeder's Gazette.  
 The American Journal of Clinical Medicine.  
 The Cornell Veterinarian.  
 The Philippine Agricultural Review.  
 The Agricultural Journal (South Africa).  
 The Rider and Driver.  
 The Annals of Surgery.

The Veterinary Alumni Quarterly (O. S. U.)  
 New York University Calendar (Weekly).  
 The Philippine Journal of Science.  
 Memoirs of the Department of Agriculture in India (Veterinary Series).  
 Proceedings Washington State V. M. A.  
 Proceedings Colorado State V. M. A.  
 Announcement Kansas City Veterinary College.  
 Second Report Commission on Milk Standards, U. S.  
 Public Health Service.  
 Annual Report Inspector of Animals, Lawrence, Mass.  
 Our Dumb Animals.  
 Journal of Experimental Medicine (Rockefeller Institute, New York).  
 Experiment Station Record, U. S. Dept. Agr.  
 Veterinary Notes.  
 Expt. Station Report, Massachusetts.

VERY HELPFUL TO HIM IN HIS PROFESSION.—The Assistant State Veterinarian of Nebraska says in renewing his subscription to the REVIEW: I find your paper very helpful and interesting to me in my profession.

## BIBLIOGRAPHY.

---

### PRODUCTIVE HORSE HUSBANDRY.

PRODUCTIVE HORSE HUSBANDRY. By Carl W. Gay, D.V.M., B.S.A.; Professor of Animal Industry, School of Veterinary Medicine, University of Pennsylvania; Director of Horse Breeding, State Live Stock Sanitary Board, Commonwealth of Pennsylvania. More than 300 pages, with 173 illustrations. Philadelphia and London. J. B. Lippincott Company. \$1.50.

This work, generously illustrated, is divided into four parts. Part I treats of *Structure and Function*; Part II deals with *Types and Breeds*; Part III considers *The Principles of Breeding*; and Part IV takes up *The Horse in Service*. The first part contains three chapters, the first of which is *The Horse—A Machine*; the second, *Conformation—The Structure*; and the third, *Way of Going—The Function*. Part II has eight chapters, which include *The Types of Horses*, *The Classes of Horses*, *The Breeds of Horses*, *Draft Breeds*, *The Heavy Harness Breeds*, *American Breeds*, *Pony Breeds*, and *Judging Horses*. One chapter, on *The Breeding of Horses*, constitutes Part III, and Part IV includes nine chapters, as follows: *Relation Between Horse and Master*, *The Feeding of Horses*, *Stables*, *Equitation*, *Vehicle*, *Harness and Saddle*, *Marketing and Shows*, *Transportation*, *The Mule*, and *The Motor as a Factor*. These headings suggest the great scope and purpose of the book, covering as it does every side of the horse question; but it is impossible to do justice to it in a description, as the illustrations add so much to its completeness. All breeds, types and classes of horses are depicted; horses pulling, horses walking, horses trotting in sulkies, horses under saddle, drafters trotting on the halter before a judging class, the trotter shown on the halter standing, saddlers standing with saddle on and saddle off, and many similar instructive portrayals. There are also 19 pages of excellent plates of the teeth, for studying the age. The author urges a systematic business-like plan in the horse industry, with a definite purpose in view, leading to more uniform results and greater profit. The markets must be closely followed, so as to keep in touch with the demand, then with intelligent application of breeding principles, produce what

the market requires. Indifference to market demands, he points out, is what makes the middle man get most of the profit, a condition that applies in horses more than in any other product. The work is at once scientific and practical. Dealing first with the mechanical structure of the horse as a machine, proceeds with the conformation and structure, and the gaits, which are naturally influenced by conformation, it follows with the types of horses, studying the breeds and classes in the field of utilization. In the latter field, showing illustrations, with foot-notes for ready reference, of practically every type in harness or carrying a rider. Floor plans and interior views of model work-horse stables are also shown. The illustrations in the mule classes also show them on the halter and in harness. In fact, this book, from the frontispiece in natural colors of a group of Percheron brood mares in a field of red clover to the last page is one continuous rich field of information on one of the most important and fascinating subjects with which veterinary science is allied. Horse breeding presents a field of industry in American agricultural pursuits without a peer; and as veterinarians are the logical leaders in solving breeding problems, the accepted zoötechnicians, whose function it is to direct the breeding of proper types of horses, not only by proper selection of individuals, but also by the proper blending of the food stuffs available, which spells economy not only in the *cost* of feeding, but in the *result* of feeding, they must apply themselves to the study of these problems so as to be worthy of such a responsible place in one of the greatest commercial interests of their country. At the end of each chapter, under the heading *Review*, the author has appended a number of questions applying to the matter discussed in that chapter, which makes the book peculiarly appropriate to the teacher and student of zoötechny, and also helps the general reader to digest the matter read, by asking himself the questions there set forth.

In short, *Gay's Productive Horse Husbandry* is a compilation of scientific and practical matter on the production, marketing and use of horses that is indispensable alike to teacher, student and practitioner. To the country practitioner it is an *essential* in acquiring the knowledge that is to help him fit himself for his daily work; to the city practitioner it is a *necessity* in effecting a greater fullness of his knowledge of types and classes; and to every veterinarian, no matter what branch of the work he may be following, it is a *source of pleasure and education* of which he should not deny himself.

The publishers deserve especial credit for their work in the



production of this book. Bound in cloth, sepia-brown, decorated in black and red, with a horse on the front cover and on the back, the paper is smooth, the type clear and sharp and the illustrations excellent.

NEW YORK CITY DEPARTMENT OF HEALTH ANNOUNCES the establishment of the following clinics for the free administration of Pasteur treatment for the prevention of rabies:

All Manhattan and Richmond cases are to be referred to the Manhattan Clinic, Room 802, 149 Centre street, between the hours of 1 and 4 p. m. on week days, and to the Brooklyn Clinic, located at the Borough office, Fleet and Willoughby streets, on Sundays and holidays, between 10 a. m. and 2 p. m.

All Queens and Brooklyn cases are to be referred to the Brooklyn Clinic, between the hours of 10 a. m. and 1 p. m. on week days, and 10 a. m. and 12 noon on Sundays and holidays.

All Bronx cases are to be referred to the Bronx Clinic, located at the Bronx office, Third avenue and St. Paul's place, between the hours of 11 a. m. and 1 p. m., Sundays and holidays inclusive.

The Manhattan Clinic is in charge of H. E. Street, M.D.; the Brooklyn Clinic in charge of J. Curran, M.D.; and the Bronx Clinic in charge of F. Harrison, M.D.

The present Pasteur Clinic at the Research Laboratory, foot of East 16th street, Borough of Manhattan, will shortly be discontinued, and hospitals and dispensaries are requested to refer all cases for treatment to the clinics at the proper Borough office.

A GEORGIA VETERINARY WRITES: "Please find check for \$3 for REVIEW. I think it the best veterinary periodical published, and don't see how I could get along in practice without the REVIEW."

## SOCIETY MEETINGS.

---

### ALABAMA VETERINARY MEDICAL ASSOCIATION.

The seventh annual meeting of the above association was held at Auburn, Alabama, in the College of Veterinary Medicine of the Alabama Polytechnic Institute. Dr. O. R. Eatman, as president of the association, made a strong plea for the veterinarians to work for an efficient veterinary practice law in the State. The primary object of which is to better control the practice of *veterinary medicine*, so that all the illegal and improper methods will be eliminated.

*How to Prevent the Spread of Disease in the Shipment of Horses and Mules* was the subject of a paper by Dr. J. S. Andrade. He considered that three (3) points were essential: 1. Efficient inspection. 2. Thorough disinfection of the sales stables. 3. Thorough disinfection of stock cars. Along this same line Dr. Bahnsen discussed *The Value of Inspection of Horses and Mules for Inter-State Shipment*. He argued that in many cases the inspection was a farce because the inspectors failed to do their duties. These papers were discussed by Drs. White, Jolly, Douglas, Roberts and Cary. Dr. Jolly stated that he considered the inspection of value and that they could be made more valuable by more thorough and closer inspection. Dr. White argued that a large number of the inspections were properly done and were consequently of great value in preventing the spreading of glanders and other infectious diseases.

Messrs. Jones and Smith, senior veterinary students, read a paper and gave an anatomical demonstration of *The Relation of the Facial Sinuses to Some Surgical Operations*. One of the chief points brought out by these students was the variability of these sinuses in two horses of the same age and the greater variability in these sinuses of horses and mules of different ages. From the sections of specimens of heads it is clearly demonstrated that in most instances it was not necessary to puncture or make an opening in the turbinated bones in order to drain the facial sinuses. It was pointed out that in all or nearly all cases that these could be drained by trephening the dependent parts of

the sinuses, making the opening very large, so that the fingers could be inserted and all partial bony partitions could then be broken down and thus permit complete draining.

Dr. N. S. Mayo, secretary of the A. V. M. A., gave a number of very interesting and valuable talks and one paper. He told veterinarians how they could help suppress and eliminate fake cure-alls and faked advertisements of cure-alls. He also read a paper on internal antiseptics, paying particular attention to iodine and its compounds, methylene blue, quinine, carbolic acid and salicylic acid. The doctor always entertained and instructed by his many good talks.

*How and When to Use a Stomach Tube* was the topic of a paper by Dr. I. S. MacAdory. This paper brought out a general discussion on colic, indigestion and gastritis, which was entered into by Drs. Jago, White, Mayo, Scully, Salter and Andrade.

*The Differential Diagnosis of Black Quarter and Malignant Edema* was rendered by Dr. C. W. Ferguson. Drs. Mayo and White claimed that they had never seen a case of black leg in an animal over two and one-half years old. Dr. Mayo said that he had seen it in many sucking calves and it occurred mostly in fat cattle between the ages of six and eighteen months. He regarded it usually as a high-land disease rather than as an exclusive low-land disease.

Dr. Scully, of Georgia, gave a short talk on the differences between the ordinary practices in the north and in the south. Dr. G. A. Roberts, of North Carolina, gave a brief talk on the effects of feeding cotton seed meal to hogs and the use of iron sulphate to correct its destructive action. Dr. H. J. Douglas, of New Orleans, described his method of preventing and treating laminitis by the use of alum and adrenalin chloride. He advised two ounces of pulverized alum in capsule or ball and follow that with one ounce three or four times a day. He also advised that sometimes it was valuable to use adrenalin chloride. His method of treatment was for acute cases. He did not attempt to explain the physiological or therapeutic action of alum. All he claimed for it was the results which were usually good.

The next paper was on *Emphysema*, by Dr. C. A. Cary. He stated that emphysema was due to some obstruction of expiration leading on to raised intra-alveolar pressure, decreased capillary circulation, malnutrition of the air sacs and diminished elasticity of the alveolar walls. The obstructed bronchii may be due to narrowing of the lumen by spasmodic contraction or the muscles of the bronchials from nervous irritation, by inflamma-

tory thickening of the bronchial walls, by a viscid exudate in the lumen or by obstruction to expiration at the larynx or other parts of the air passages. The opinion was expressed that ordinary dust in well-cured hay had little or nothing to do as a cause of emphysema.

It was suggested that a chemical substance of some bacteria or fungus that was at its height during the curing process of hay acted through the nervous system either by way of the stomach or air passages and produces spasms of the bronchü. It was stated that it was wise not to confound dust irritants that excite or exaggerate the action of an established case with the real cause.

Dr. A. H. French gave a very interesting and instructive talk on distemper in dogs. There was a varied opinion concerning acquired immunity to dog distemper. Dr. French and Dr. Douglas claimed that they had seen several attacks in the same dog, while Dr. White stated that one attack in Tennessee gave permanent immunity.

The following officers were elected for the ensuing year: Dr. W. B. Nixon, Demopolis, President; Dr. J. S. Andrade, Hustsville, Vice-President; Dr. C. A. Cary, Auburn, Secretary-Treasurer.

Upon the adjournment of the Alabama Association a temporary interstate organization was formed. Dr. G. R. White, of Nashville, was elected President; Dr. C. A. Cary, of Alabama, was elected Secretary-Treasurer. The object of this association was to discuss ways and means by which the southern veterinarians could make the New Orleans meeting a success. Dr. F. J. Douglas, of New Orleans, first discussed the subject of the clinic. He stated that arrangements had been made with the Exposition Association to hold the clinic in their auditorium. He also stated that the veterinarians in New Orleans would have ample clinical material.

The next subject discussed was that of new members from the south. It was decided that each southern State association and each member of the American Veterinary Medical Association in the south should round-up all the available and qualified veterinarians in the south and get them to join the A. V. M. A. at the New Orleans meeting.

The next topic for discussion was the financial one. Dr. G. R. White suggested that each state association should be called upon to contribute and each member of the state associations should likewise be requested to contribute. It was next decided

that the funds subscribed by the various States in the south should be put in a bank in each State, subject to the call of the committee in charge of the entertainment at New Orleans.

As a result of the discussion the following committees were appointed: 1. Finance, Dr. G. A. Roberts, of Raleigh, N. C., Chairman. 2. Membership & Publicity, Dr. G. R. White, of Tennessee, Chairman. 3. Entertainment, Dr. C. R. Jolly, of Atlanta, Chairman. 4. Transportation, Dr. C. A. Cary, of Alabama, Chairman.

These committees are to confer with the various State associations and local committees and arrange for the entertainment at New Orleans.

This temporary Association of Southern Veterinarians adjourned to meet in New Orleans one to two days ahead of the American Veterinary Medical Association.

The second night of the meeting, March 6, the Veterinary Medical Association of the Alabama Polytechnic Institute entertained all the visiting veterinarians at a banquet in Smith dining hall. There were about 125 in attendance at this banquet and all in attendance voted it a great success and the visitors extended their most hearty thanks to the veterinary students for this most hospitable and social occasion.

The last day was devoted exclusively to clinic at the Veterinary College of the Alabama Polytechnic Institute. This clinic began at nine a. m. and lasted until 5 p. m.

Dr. G. R. White, of Tennessee, first gave two demonstrations in castration. He castrated a five year old stallion standing and then a two year old stallion restrained by his special method for restraining colts. Drs. Jolly, Dean and Bahnsen next examined three cases of fistulous withers. Dr. Jolly operated on one of these which had a deep cavity, running downward and forward anterior to the first one or two dorsal spinous processes. He opened this cavity at its lowest point anterior to the upper third of the scalpula. He advised drainage by use of the seaton or drainage gauze.

The next case was one of lameness, the diagnosis of which was made by Dr. A. J. Douglas. Some dispute arose as to the correctness of the diagnosis and Dr. Douglas anesthized the parts with cocaine and proved that he was correct in attributing the lameness to ring bone.

A case of chronic emphysema was exhibited and diagnosis made by Dr. Jago of Athens, Ga. Dr. Mayo suggested that this case be treated by the arsenic-atropine method.



A case of dumb rabies in a bull pup was exhibited by a senior veterinary student, Mr. Willbanks. This pup exhibited paralysis of the lower jaw, inability to swallow and the characteristic expression.

A case of bastard strangles in a five-year-old mare that was in the veterinary hospital was exhibited. This mare had a post pharyngeal and sub-parotid abscess. This abscess had been opened by way of virbogs triangle, drained and flushed and kept open by antiseptic gauze.

An obscure case of lameness in a mule was the subject of much discussion by Drs. Roberts, Salter, Jolly, Bahnsen and Douglas. It was finally decided that the case should be treated for muscular trouble in the post-brachial region.

A suppurating, schirrus chord in a mule was removed by Dr. C. A. Cary. The animal was restrained by Dr. White; the large chord dissected out up to the external inguinal region and cut off by an encraseur. The cavity was packed with sterilized gauze held in place by stitching up the wound with continuous suture.

A cryptorchid hog was castrated by Dr. G. R. White. This hog was hung up by the hind limbs and the opening made into the abdomen a little to one side of the median line. With the hog in this position, Dr. White claims that the abdominal organs are, by gravitation, dropped out of the way.

Following this Dr. White inoculated twenty hogs by the simultaneous method as practiced in Tennessee for the production of permanent immunity to hog cholera.

By the use of a college "Sub," Dr. C. A. Cary illustrated the roaring operation with the animal standing. This operation was done with the use of cocaine injected subcutaneously over the laryngeal region and the cocaine was applied by cotton to the mucosa in the ventricle. The animal suffered no pain or irritation during the operation.

A horse was next presented to the clinic which had been operated for paralysis of the penis. Dr. Cary had removed a six-inch cuff of the prepuce and this held the penis so that only about three inches of it extended beyond the opening of the sheath. He should have removed two inches more of the prepuce and left the penis protruding only one inch from the sheath.

Dr. P. F. Bahnsen, of Georgia, gave a very fine and interesting demonstration of his method of casting and restraining animals by means of a single rope. He put the mule in position for castration, for single foot operation, etc.

Three mules were exhibited to show the results of low teno-

tomy or cutting the flexor tendons below the fetlock for contraction of those tendons. In each case the results were permanently good.

C. A. CARY,  
Secretary-Treasurer.

NOTE.—The foregoing secretary's report was received after Dr. Mayo's report was in type; so we have given our readers the benefit of both reports. [Editor.]

#### ALABAMA VETERINARY MEDICAL ASSOCIATION.

The seventh annual meeting was held in the Veterinary College of the Alabama Polytechnic Institute at Auburn on March 5, 6 and 7, 1914. While the attendance of veterinarians was not large, an exceedingly interesting and practical meeting was held. The veterinary students attended all meetings and assisted at the clinics.

President Thatch of the college welcomed the association with an inspiring address. Dr. Peter Bahnson, State Veterinarian of Georgia, discussed the question of "Inspecting Horses and Mules for Inter-State Shipment." The requirement of some States for a veterinary certificate of health for all horses and mules coming into the State brought out a vigorous discussion.

Dr. Jolly, of Atlanta, contended that a careful veterinary inspection was more important to the shipper than to the State, as it should prevent shipping horses suffering from shipping fever that frequently caused heavy losses to the shipper.

Dr. Andrade read a paper on "How to Prevent the Spread of Disease in Shipping Horses and Mules," in which he advocated a careful inspection and vaccination with strepto-bacterins of all animals before shipping.

Dr. Ferguson read a paper on "Differential Diagnosis of Black Quarter and Malignant Odema," and Dr. I. S. McAdory told in a practical way "How and When to Use the Stomach Tube." Dr. C. H. Cary presented the subject of "Emphysema" and urged a more thorough scientific study of this common disease, particularly as to its pathology. This subject was discussed by various veterinarians. It seemed to be the opinion that this disease has been much neglected by veterinarians.

Messrs. W. B. Smith and J. K. Jones, veterinary students, presented the subject of "The Facial Sinuses and Their Relation to Surgical Operations," and illustrated the subject with a finely prepared set of specimens. Dr. A. H. French read a paper on "Distemper in Dogs" that was very practical and created a

good deal of discussion. Dr. N. S. Mayo read a paper on "Internal Antiseptics."

The Inter-State meeting was devoted largely to the coming meeting of the A. V. M. A. at New Orleans. Dr. F. J. Douglas, of New Orleans, was there and told of the plans for a clinic.

Drs. Geo. R. White, of Tennessee; G. A. Roberts, of North Carolina; and C. A. Cary, of Alabama, told what was being done to make the New Orleans meeting one that the whole South would be proud of. Everything indicated a large and very successful meeting at New Orleans next December.

The clinic at the meeting was one of the finest ever attended by the writer. There was a great variety of subjects, and with such artists as Cary, Jolly, Bahnson, George White, French and others to instruct, it made a clinic second to none in interest and practical results.

N. S. M.

---

#### VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of the above association was held at Brandon March 4, 1914, President E. P. Westell in the chair. There was a large attendance of members.

The minutes of last meeting were read and adopted. Reports were presented by the secretary. The financial statement showed a satisfactory balance on hand, and members expressed pleasure in the fact so reported. The registrar reported the following, who had been registered after passing the prescribed examination: C. A. Mack, 1902; F. M. Schnell, 1913; E. L. Houck, 1913; C. W. Johnston, 1913 (McKillip Veterinary College); J. H. Dann, 1913; A. W. McCaskill, 1913; G. A. Bowman, 1913; J. A. Leadbeater, 1913; G. K. Hobson, 1913; H. R. McEwen, 1913; J. F. Skinner, 1913 (Ontario Veterinary College).

An invitation was extended by the Police Magistrate Bates, president of the Kennel Club, to attend the Dog Show taking place that day in Brandon, the first bench show of its kind held in Brandon.

The election of officers resulted as follows: For executive committee, Drs. Hilton, Westell, McGilvray, Robson, Cox, S. T. Martin, Lee; president, Dr. Lee; vice-president, Dr. Martin; secretary treasurer, Dr. Hilton; board of examiners, Drs. McGilvray, Westell and Hilton. President Lee, taking the chair, thanked the association for the honor done him. He hoped he would be able to fill his office, though he did not feel he could do so as well as it had been done in the past.

Dr. Part read a paper on "Obstetrics," and after discussion took place it was decided to hold the next semi-annual meeting in Winnipeg at the time of the Exhibition. The auditors were re-elected and the meeting adjourned.

During the afternoon the members of the association attended the dog show and then spent a very interesting time at the Fat Stock Show, ending up the day at a banquet held at the Cecil Hotel, as guests of Drs. Cox and Robinson.

---

### PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

On March 3 and 4, while the state was enveloped in the heaviest blanket of snow it has known for many years, the veterinarians of Pennsylvania convened in Philadelphia to enact the programme of the 31st annual meeting of their organization. And while the road conditions were such as to make it impossible for a great many to attend (practically holding them in their houses in some sections), still the attendance was good, and the meeting a successful one in every respect. Representation of all committees were in attendance, so that committee reports were given according to program, and only about four papers from the large and attractive program were not presented. Eleven new members were elected, six from outlying cities and five from Philadelphia. The following officers and trustees were elected for the ensuing year:

President, H. B. Cox, Philadelphia; vice-presidents, Thomas Kelly, Philadelphia; R. M. Staley, Harrisburg; P. K. Jones, Pittsburgh; treasurer, R. F. Bridge, Philadelphia; corresponding secretary, John Reichel-Glenolden; recording secretary, E. H. Yunker, Philadelphia.

Board of Trustees: C. J. Marshall, chairman, Philadelphia; F. H. Schneider, Philadelphia; L. A. Klein, Philadelphia; J. W. Sallade, Auburn; C. W. Springer, Uniontown.

---

### MONTANA VETERINARY MEDICAL ASSOCIATION.

RESOLUTIONS PASSED AT LAST REGULAR MEETING IN BOZEMAN: We the members of the Montana Veterinary Medical Association, assembled in regular mid-winter session, realizing the present inefficiency of the organization of the U. S. Army Veter-

inary Service, do unanimously recommend the following resolutions:

*Resolved*, That we do indorse H. R. No. 4541, known as Army Service Bill, which is now before Congress, for the reasons that it provides for greater service to be rendered by the army veterinarians to our country; that it renders possible more efficient service, by them, to the army; that it makes provision for the proper rank and professional standing, which their training and entrance requirements into the army service demand; and finally that it makes provision for the retirement and care of the army veterinarian after he has spent all of his useful life in the service of his country.

*Resolved*, That copies of these resolutions be forwarded to each member of both houses of Congress, from Montana, under the seal of this association, signed by the president and secretary, and that they be requested to use their good offices for the passage of this bill.

Dated at Bozeman, Montana, this 27th day of January, 1914.

H. WELCH, *President*.

A. D. KNOWLES, *Secretary-Treasurer*.

---

## B. A. I. VETERINARY ASSOCIATION OF CHICAGO, ILL.

The seventh annual banquet and dance, to which invitations were extended to all members of the force stationed at Chicago, Ill., was held Saturday evening, February 14, 1914, at the Saddle and Sirloin Club.

Dr. V. A. Moore, director of the New York State Veterinary College, Cornell University, was the guest of honor, and the principal speaker of the evening. His topic was "The Veterinary Inspector and His Problems."

Other speakers were: Dr. S. E. Bennett, inspector-in-charge Bureau of Animal Industry, Chicago, Ill., who spoke on "Friendship"; Dr. L. Enos Day, "The Ladies," and the president of the association, Dr. A. L. Faunce, "Our Association." Dr. A. M. Casper was toastmaster.

The banquet was followed by a dance greatly enjoyed by all present.

This was the first time ladies graced our banquet board. This innovation was voted a success and the banquet the best ever.



The following officers were elected at the regular meeting, February 13: Dr. A. L. Faunce, president; Dr. C. L. Norris, vice-president; Dr. B. J. Stocler, secretary and treasurer.

NOTE—A news item on this meeting appeared in our March issue, page 735.

---

### ARKANSAS VETERINARY ASSOCIATION.

The seventh annual meeting of the above association was held on February 16 and 17, 1914, at Ft. Smith. The meeting was called to order by Dr. J. F. Stanford, president; roll call by Dr. J. B. Arthur, secretary. The opening address was delivered by Mayor H. C. Reed. After the regular routine of business several interesting discussions were taken up in regard to eradication of the Texas fever tick, hog cholera and glanders.

The second day was devoted to a clinic which was held at Dr. X. G. May's hospital, where a large number of both major and minor operations were performed by the attending veterinarians.

The officers elected for the coming year were as follows: Dr. J. B. Arthur, president; Dr. X. G. May, vice-president; Dr. R. M. Gow, secretary and treasurer. The next meeting will be held at Little Rock, January 5 and 6, 1915.

R. M. Gow, *Secretary and Treasurer.*

Fayetteville, Ark.

---

### YORK COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular quarterly meeting of the above association was held at the National Hotel, York, March 3, 1914. Interesting discussions were had on "Capped Hocks in Horses and Mules," "Tetanus," "Azoturia," "Influenza," "Pneumonia and Pleurisy," and "Distemper in Dogs." Secretary Bausticker reported the society to be in a flourishing condition, and stated that there was not much evidence of contagious diseases throughout the county. The following officers were elected: President, Fred. Hartenstein, New Freedom; 1st vice-president, C. A. Kain, York; 2d vice-president, J. D. Smith, Dallastown; treasurer, M. H. Gladfelter, York; Secretary, E. S. Bausticker, re-elected. Next meeting June 2, 1915.

E. S. BAUSTICKER, *Secretary.*

## OBITUARY.

---

### EDWARD I. CARTER, D.V.S.

Dr. Edward I. Carter, a native of Shropshire, England, died at Pittsburgh, Pa., Feb. 14, 1914, in the 65th year of his age. He graduated with highest honors at Montreal Veterinary College in 1881, then came to Pittsburgh, where he soon gained a large and lucrative practice, and retired New Year's Day, 1897. He soon suffered reverses and was reduced to penury, and never regained his former prestige or practice.

### THOMAS B. HILLOCK, V.S.

Dr. Thomas B. Hillock died at his home in Columbus, Ohio, on March 4, 1914, at the age of 68 years. Dr. Hillock graduated from the Ontario Veterinary College in 1872. He was at one time state veterinarian of Ohio; was treasurer of the Ohio State Veterinary Medical Association, and member of the American Veterinary Medical Association. He was loved by all who knew him.

DR. W. B. LEWIN DEAD.—Dr. W. B. Lewin, Russell, Ill., died in February. Dr. Lewin was an old subscriber to the REVIEW, and we were grieved and surprised to learn of his death.

VETERINARIAN KILLED IN AUTOMOBILE ACCIDENT.—Dr. A. J. Ransom, of Gainesville, Florida, was instantly killed by being thrown from his automobile as it collided with a mule on March 14. The doctor was thrown from the car, landing on his head and breaking his neck. He leaves a wife and one daughter.

---

DOG TRAMPED 2,000 MILES.—Footsore and almost starved, Bonnie, a 3-year-old Scotch collie, returned to his old home in Olathe, Kansas, after a weary tramp of 2,000 miles. In October, 1912, the dog was given away to be taken to a home in Southern Florida. He stayed there with his new owner for two weeks, but seemed to be discontented and would eat only occasionally. He left one night and nothing more was heard from him until he walked into Olathe sixteen months afterwards. His feet were sore and bleeding and the toenails were worn off.—(*Our Dumb Animals.*)

## NEWS AND ITEMS.

---

### RUSH SHIPPEN HUIDEKOPER.

A portrait of Dr. Rush Shippen Huidekoper, the first dean of the Veterinary School at the University of Pennsylvania, was presented to the University by Mr. Joseph G. Rosengarten, one of the trustees, and has been hung in the Faculty Room at the Veterinary School. The formal presentation was made by Dean Louis A. Klein at the Founders' Day exercises in the Academy of Music on February 23. Wasington's birthday being celebrated each year by the University of Pennsylvania as Founders' Day. We publish below the presentation address of Dr. Klein. Having enjoyed the privilege of a personal acquaintance with Dr. Huidekoper, and having been for a few years closely associated with that great veterinarian, we feel sure that there are many hundreds of veterinarians throughout the country who will enjoy learning through the splendid remarks of Dr. Klein, of the placing of his portrait in the Faculty Room of the school he founded, and having their memories refreshed on his professional career.

#### THE PRESENTATION BY DEAN KLEIN.

It is my pleasant privilege to present to the University this portrait of Dr. Rush Shippen Huidekoper, the first dean of the School of Veterinary Medicine.

Dr. Huidekoper was prepared for the medical profession at the University. Graduating with the class of 1877, he became a volunteer assistant to the late Dr. D. Hayes Agnew and had an opportunity to study the methods which had made that eminent surgeon famous as a teacher. He was engaged also in general medical practice, was a member of the staffs of the Children's Hospital, Philadelphia Dispensary and University Hospital, and for two years made a special study of pathology as coroner's physician. A fancier of animals, particularly the horse and dog, Dr. Huidekoper was naturally interested in veterinary medicine. Consequently, when he was asked to go abroad to prepare himself to organize the Veterinary School, which was then about to be founded at the University, he accepted the offer and entered upon the new field with characteristic energy and enthusiasm. He went to France and entered the Veterinary School at Alfort, from which he graduated in 1882 and then studied for a year in the laboratories of Virchow, Koch, Chauveau and Pasteur. Dur-

ing his stay in Europe he also visited nearly all of the important veterinary schools.

Upon his return in 1883, he supervised the construction of the first buildings for the Veterinary School at the University, which were erected at Thirty-sixth street and Pine, now Hamilton Walk. He also arranged the course of instruction. A leading feature of his plan was that the students should *do* as well as see and hear; that they should have an opportunity to learn the art as well as the science of veterinary medicine. Clinical instruction and surgical exercises were developed to an extent never before attained in America and considerable laboratory work and dissection were also provided for. The course was so broadly planned and future needs were so well anticipated that while the subjects included in the course by Dr. Huidekoper have been amplified and extended, it has not been necessary up to this time to add any additional subjects except those studies which have developed into separate subjects since the school was organized. Dr. Huidekoper held the chair of Theory and Practice of Medicine and was Pro-tempore Professor of Anatomy, but during the first two years of the school he gave instruction not only in these subjects but taught also histology and zootechnics, held clinics, conducted a very large practice, and edited a veterinary journal. His capacity for work was marvelous.

As a veterinarian he soon attained national prominence and did much work of service to the veterinary profession at large. He also wrote several books on veterinary subjects. In whatever position he was placed he rose above the mediocre, but he was at his best as a teacher. Blessed with an excellent memory and imbued with a thirst for knowledge that made him an industrious student, he was especially fitted for this work. His lectures were characterized by lucidity, methodical arrangement and precision of statement, and he possessed to a remarkable degree the power of awakening the enthusiasm and winning the regard of his students. His former students invariably speak of his kindly interest, of his great industry and enthusiasm and of the fullness of his knowledge. With all their added years of life and of experience they still have the highest regard for his ability and learning. Only a good teacher could stand this test.

Every student of Dr. Huidekoper's who yet lives, every alumnus of the veterinary school, every veterinarian who knew him, and all his other friends will feel deeply grateful to Mr. Joseph G. Rosengarten for presenting to the University this memorial of one who rendered such valuable and faithful service in the first years of the veterinary school.

RULES AND REGULATIONS FOR THE IMPORTATION OF HORSES,  
ASSES AND MULES INTO RHODE ISLAND, IN EFFECT ON  
AND AFTER MARCH 2, 1914.

Whereas, the disease known as glanders or farcy, which disease is contagious not only to horses, asses and mules, but to human beings, has, in the opinion of the Veterinarian appointed by the State Board of Agriculture of the State of Rhode Island, become prevalent in Rhode Island and the States bordering on said State, and in Indiana.

Now, be it known that by the power vested in the Rhode Island State Board of Agriculture by Chapter 119, Section 3 of the General Laws of Rhode Island, 1909, the following rules and regulations have been duly adopted by said State Board of Agriculture:

Section 1. All horses, asses and mules brought into Rhode Island from the States of Massachusetts, New York, Indiana and Connecticut must be accompanied by a permit upon which shall appear distinguishing marks describing such animal, issued by the said State Veterinarian of the State of Rhode Island; and the arrival of all such animals must be reported to the said Veterinarian within twenty-four hours after destination is reached, and they must remain in quarantine on the owner's premises and at the owner's expense until released by the said State Veterinarian.

Sec. 2. All horses, asses and mules so brought into this State from Massachusetts, New York, Indiana and Connecticut, having first passed an examination and an opthalmic mallein test, as recognized by the U. S. Bureau of Animal Industry, made by a competent veterinarian before shipment, and the certificate of health having been issued by such veterinarian and duly approved by the proper authorities having jurisdiction over the diseases of domestic animals of the State from which such shipment is made, may be released from quarantine by the State Veterinarian or his deputy. Such certificate shall contain a description of the animal examined by such veterinarian, together with distinguishing marks that appear on the same.

Sec. 3. All horses, asses and mules brought into this State, not accompanied by such health certificate as provided in Section 2 hereof, shall be examined by a veterinarian in such manner and such tests made as the State Veterinarian may direct, at the expense of the owner or owners, upon arrival in this State, and the certificate of health issued by such veterinarian shall be subject to the approval of the State Veterinarian before such animals are released from quarantine.



Sec. 4. All releases from quarantine will be issued by the State Veterinarian or some assistant to be approved by said Board of Agriculture. All horses, asses and mules found to be diseased will be killed as by law provided, the carcasses burned or buried or turned over to a rendering company for treatment in such a manner as not to menace the public health and will prevent a spread of the disease, and the premises disinfected at the owner's expense.

Sec. 5. The foregoing rules and regulations do not apply to horses, asses and mules that enter the State in their daily work or to such animals as are being transported through the State by common carriers aboard cars; but none of such animals while in transit shall, if unloaded for any necessary purpose, be permitted to go beyond the care and control of such common carrier.

OFFICIAL MALLEIN TEST FOR HORSES: ORDER NUMBER FOUR.  
*After March 15, 1914, the State of Colorado Will Adopt As the  
Official Test for Horses and Mules the*

OPHTHALMIC-MALLEIN TEST.

This test has been adopted by the U. S. Government and a number of other States.

A book of instructions will accompany each letter and your attention to a careful reading of the instructions is asked.

Special attention is asked to the last page of this booklet, in which the new system of recording all tests are made.

All authorized veterinarians by me have had their names and addresses sent to every State *veterinarian* in the United States, and it will be necessary that every *mallein and tuberculin test* be recorded in my office by a duplicate chart.

There has been no change in the *tuberculin test for tuberculosis*. The *inter-dermal test* is not a recognized test but by one State and will not be accepted by the State of Colorado.

Any authorized *veterinarian* failing to record in this office a copy of all tests made will have his name struck from the authorized list of Deputy State Veterinarians for Inter-State testing, and notice to this effect will be sent to all *State veterinarians*.

The regulation tuberculin test must be made by all authorized veterinarians and in the application they sign upon which the authorization is based they agree to make all tests as per instructions of this office. If veterinarians do not care to follow these directions they can inform this office and be stricken from the list.

DR. W. W. YARD,  
State Veterinary Surgeon.

March 1, 1914.

SANITARY ORDER REGULATING THE SALE OF VIRUS FOR HOG CHOLERA: TO ALL MANUFACTURERS OF HOG CHOLERA SERUM OR VIRUS WHO MAY WISH TO OPERATE IN THE STATE OF COLORADO.—As the *State Live Stock Sanitary Board* of the state of Colorado is given authority under the laws of the state to make such rules and regulations as are necessary for the eradication of any and all contagious and infectious diseases, the State Live Stock Sanitary Board has this day ordered the state veterinary surgeon of the state of Colorado to take such steps as in his judgment will control and eradicate the disease of cholera.

It is hereby ordered by the state veterinary surgeon that the sale or use of *virus* or *virulent blood* shall only exist under the following conditions:

All persons, firms or corporations wishing to sell or use virus must first obtain permission from the state veterinary surgeon, Dr. W. W. Yard, State Capitol, Denver, giving a thorough explanation as to conditions under which the blood is to be sold and used.

Only such veterinary surgeons as are graduates and hold state licenses as the state veterinary surgeon may authorize, shall be allowed to use hog cholera virus or virulent blood in the treatment of hog cholera in the state of Colorado.

All firms, corporations and persons interested in the welfare of the state and the public health are asked to cooperate with the sanitary authorities in every manner possible in order that hog cholera can be controlled in the state of Colorado.

D. W. YARD,  
State Veterinary Surgeon.

Attest: E. McCrillis, Secretary.

DR. A. D. KNOWLES RELINQUISHES HIS COUNTRY PRACTICE AND GOES INTO THE CITY.—Dr. A. D. Knowles, formerly of Livingston, Montana, has taken up his residence in Butte, that state, and will engage in city instead of country practice.

DR. MORGAN J. SMEAD, VETERINARIAN, has accepted a position in the Biological Laboratory of Parke, Davis & Co., Detroit, Mich. The doctor was formerly at Port Huron, that state. He concludes his letter advising us of change of address with: "I cannot afford to miss any copies of the REVIEW."

# VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alabama Veterinary Med. Ass'n.....	Mar. 5-6-7, 1914 .....	Auburn.....	C. A. Cary, Auburn.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1914.....	141 W. 54th St.....	P. K. Nichols, Port Richmond, N.Y.
American V. M. Ass'n.....	Dec., 28-31, 1914 .....	New Orleans, La.....	Nelsen S. Mayo, 4753 Ravenswood Ave., Chicago, Ill.
Arkansas Veterinary Ass'n.....	January 5-6, 1915 .....	Little Rock.....	R. M. Gow, Fayetteville.
Ass'n Médéciale Veterinaire Française "Laval".....	1st and 3d Thur. of each month.....	Lec. Room, Laval Un'y, Mon. ....	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. each month.....	Chicago.....	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., So. Omaha.....	3d Mon. each month.....	S. Omaha, Neb.....	E. J. Jackson, So. Omaha.
Buchanan Co. Vet. Ass'n.....	Monthly.....	St. Joseph and vicinity .....	F. W. Caldwell, St. Joseph, Mo.
California State V. M. Ass'n.....	December 10, 1913.....	San Francisco.....	John F. McKenna, Fresno.
Central Canada V. M. Ass'n.....	Feb. and July.....	Ottawa.....	A. E. James, Ottawa.
Central N. Y. Vet. Med. Ass'n.....	June and Nov.....	Syracuse.....	W. B. Switzer, Oswego.
Chicago Veterinary Society.....	2d Tues. each month.....	Chicago.....	D. M. Campbell, Chicago.
Colorado State V. M. Ass'n.....	May 28-29, 1913.....	Ft. Collins.....	I. E. Newsom, Ft. Collins.
Connecticut V. M. Ass'n.....	Aug. 4, 1914.....	Waterbury.....	B. K. Dow, Williamantic.
Delaware State Vet. Society.....	Jan., Apl., July, Oct.....	Wilmington.....	A. S. Houchin, Newark, Del.
Essex Co. (N. J.) V. M. A.....	3d Mon. each month.....	Newark, N. J.....	J. F. Carey, East Orange, N. J.
Genesee Valley V. M. Ass'n.....	2d week, July, 1913.....	Rochester.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	Dec. 22-23, 1913.....	Atlanta.....	P. F. Bahnsen, Americus.
V. M. A. of Geo. Wash. Un'y.....	1st Sat. each month.....	Wash., D. C.....	I. M. Cashe.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis F. Cook, Cincinnati.
Illino Vet. Med. Ass'n.....	Mar. 26, 1914.....	Belleville, Ill.....	L. B. Michael, Collinsville, Ill.
Illinois State V. M. Ass'n.....	December, 1913.....	Chicago.....	L. A. Merillat, Chicago.
Indiana Veterinary Association.....	Jan. 14, 1914.....	Indianapolis.....	A. F. Nelson, Indianapolis.
Iowa Veterinary Ass'n.....	Pending.....	Pending.....	C. H. Stange, Ames.
Kansas State V. M. Ass'n.....	Jan. 6-7-8, 1914.....	Manhattan.....	J. H. Burt, Manhattan.
Kentucky V. M. Ass'n.....	Oct. & Feb. each year.....	Lexington.....	Robert Graham, Lexington.
Keystone V. M. Ass'n.....	2d Tues. each month.....	Philadelphia.....	Cheston M. Hoskins.
Lake Erie V. M. Association.....	Pending.....	Pending.....	Phil. H. Fulstow, Norwalk, Ohio.
Louisiana State V. M. Ass'n.....	Sent., 1914.....	Lake Charles.....	Hamlet Moore, New Orleans, La.
Maine Vet. Med. Ass'n.....	April 8, 1914.....	Bangor.....	H. B. Wescott, Portland.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	4th Wed. each month.....	Young's, Boston.....	J. H. Seale, Salem.
Michigan State V. M. Ass'n.....	Feb. 3, 4, 1914.....	Lansing.....	W. A. Ewalt, Mt. Clemens.
Minnesota State V. M. Ass'n.....	Jan. 14-15-16, 1914.....	St. Paul.....	G. Ed. Leach, Winona.
Mississippi State V. M. Ass'n.....	Aug. 29, 1913.....	Starkville.....	Wm. P. Ferguson, Grenada.
Missouri Valley V. M. Ass'n.....	Jan. 27, 28, 29, 1914.....	Kansas City, Mo.....	Hal. C. Simpson, Denison, Ia.
Mississippi Valley V. M. Ass'n.....	Semi-Annually—Call of Chair.....	.....	.....
Missouri Vet. Med. Ass'n.....	July, 1913.....	Galesburg, Ill.....	G. E. McIntyre, Alexis, Ill.
Montana State V. M. A.....	Sept. 24, 25, 1913.....	Kirkville.....	S. Stewart, Kansas City.
Nebraska V. M. Ass'n.....	1st Mo. & Tu., Dec. '13.....	Helena.....	A. D. Knowles, Livingston.
New York S. V. M. Soc'y.....	Sept., 1914.....	Lincoln, Neb.....	Carl J. Norden, Nebraska City.
North Carolina V. M. Ass'n.....	June, 1914.....	Rochester.....	H. J. Milks, Ithaca, N. Y.
North Dakota V. M. Ass'n.....	Week of July 20, 1914.....	Wilson.....	J. P. Spoon, Burlington.
North-Western Ohio V. M. A.....	Nov. 1913.....	Fargo.....	A. F. Schalk, Agricultural College.
Ohio State V. M. Ass'n.....	Jan. 14, 15, 1914.....	Delphos.....	E. V. Hover, Delphos.
Ohio Soc. of Comparative Med.....	Annually.....	Columbus.....	Reuben Hilly, Toledo.
Ohio Valley Vet. Med. Ass'n.....	.....	Upper Sandusky.....	F. F. Sheets, Van Wert, Ohio.
Oklahoma V. M. Ass'n.....	Fall, 1913.....	.....	J. C. Howard, Sullivan.
Ontario Vet. Ass'n.....	1st Week in Feb. 1914.....	Oklahoma City.....	C. E. Steel, Oklahoma City.
Pennsylvania State V. M. A.....	Mar. 3, 4, 1914.....	Toronto.....	L. A. Willson, Toronto.
Philippine V. M. A.....	Call of President.....	Philadelphia.....	John Reichel, Glenolden.
Portland Vet. Med. Ass'n.....	4th Tues. each month.....	Manila.....	David C. Kretzer, Manila.
Province of Quebec V. M. A.....	.....	Portland, Ore.....	Sam. B. Foster, Portland, Ore.
Rhode Island V. M. Ass'n.....	Jan. and June.....	Mon. and Que.....	Gustave Boyer, Rigaud, P. Q.
South Carolina Ass'n of Veter na.....	Pending.....	Providence.....	J. S. Pollard, Providence.
South Illinois V. M. and Surg. Ass'n.....	Aug. 4-5-6, 1914.....	Pending.....	B. K. McInnes, Charleston.
St. Louis Soc. of Vet. Inspectors.....	1st Wed. fol. the 2d Sun. each month.....	Salem.....	F. Hockman, Iola.
Schuylkill Valley V. M. A.....	June 17, 1914.....	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Soc. Vet. Alumni Univ. Penn.....	.....	Reading.....	W. G. Huyett, Wernersville.
South Dakota V. M. A.....	Pending.....	Philadelphia.....	B. T. Woodward, Wash., D. C.
Southern Aux. of Cal. S. V. M. Ass'n.....	Jan. Apl., July, Oct.....	Madison.....	S. W. Allen, Watertown.
South St. Joseph Ass'n of Vet. Inap.....	4th Tues. each month.....	Los Angeles.....	J. A. Dell, Los Angeles.
Tennessee Vet. Med. Ass'n.....	November, 1914.....	407 Illinois Ave.....	H. R. Collins, South St. Joseph.
Texas V. M. Ass'n.....	Nov. 1913.....	Nashville.....	O. L. McMahon, Columbia.
Twin City V. M. Ass'n.....	2d Thu. each month.....	College Station.....	Allen J. Foster, Marshall.
Utah Vet. Med. Ass'n.....	Spring of 1914.....	St. P.-Minneap.....	M. H. Reynolds, St. Paul, Minn.
Vermont Vet. Med. Ass'n.....	.....	Salt Lake City.....	E. J. Coburn, Brigham City.
Veterinary Ass'n of Alberta.....	.....	.....	G. T. Stevenson, Burlington.
Vet. Ass'n Dist. of Columbia.....	3d Wed. each month.....	514 9th St., N.W.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Vet. Med. Ass'n, Geo. Wash. Univ.....	1st Sat. each month.....	Wash'ton, D. C.....	M. Page Smith, Washington, D. C.
Vet. Ass'n of Manitoba.....	Feb. & July each yr.....	Winnipeg.....	J. M. Cashe, 2115 14th Street.
Vet. Med. Ass'n of N. J.....	January 8, 1914.....	Trenton.....	Wm. Hilton, Winnipeg.
V. M. Ass'n, New York City.....	1st Wed. each month.....	141 W. 54th St.....	E. L. Loblein, New Brunswick.
Veterinary Practitioners' Club.....	Monthly.....	Jersey City.....	R. S. MacKellar, N. Y. City.
Virginia State V. M. Ass'n.....	July 9-10, 1914.....	Staunton.....	T. F. O'Dea Union Hill, N. J.
Washington State Col. V. M. A.....	1st & 3d Fri. Eve.....	Pullman.....	Geo. C. Faville, North Emporia.
Washington State V. M. A.....	June 18-19, 1914.....	Walla Walla.....	R. J. Donohue, Pullman.
Western Penn. V. M. Ass'n.....	3d Thu. each month.....	Pittsburgh.....	Carl Cosier, Bellingham.
Wisconsin Soc. Vet. Grad.....	Feb. 10, 11, 1914.....	Milwaukee.....	Benjamin Gunner, Sewickley.
York Co. (Pa.) V. M. A.....	June, Sept., Dec., Mar.....	York.....	W. W. Arnsberger, Watertown.
			E. S. Bausticker, York, Pa.

## PUBLISHERS' DEPARTMENT.

---

*Subscription price, \$3 per annum, invariably in advance; Canadian subscriptions, \$3.25; foreign countries, \$3.60; students while attending college, \$2; Students in Canada, \$2.25; single copies, 30 cents in U. S. Copy for advertisements should be received by 10th of month.*

*Rejected manuscripts will not be returned unless postage is forwarded.*

*Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address. Make all checks or P. O. orders payable to American Veterinary Review.*

---

MISTURA ARGENTI COMPOSITA has changed the style of its ad. but the product has not changed. It remains the same dependable agent in the treatment of bone and joint lamenesses. See the new adv. on page 9, this issue.

---

ACCURACY LABORATORIES' NEW ADDRESS: Since March 1, the address of this Chicago house has been 1724-1726 Madison Street, as shown in the advertisement on page 1 (adv. dept.), of the previous and present issues of the REVIEW.

---

HOBDAV'S THIRD EDITION OF COURTNEY'S VETERINARY MEDICINE CAN BE OBTAINED FROM CHICAGO HOUSE. On page 767, March REVIEW, we reviewed the above-named book, referring to the London publishers. Soon after the publication of said review of the book we began to receive inquiries as to where it could be procured in this country, and are pleased to be able to tell our readers that the book is also published in this country, by the CHICAGO MEDICAL BOOK COMPANY, Honore and Congress Streets, Chicago, Ill., from whom we have since received a copy. Our review of the book in the March issue, referred to above, of course, applies also to the work as published by the Chicago publishers. Each publisher binding the book according to his own idea. The advertisement of this house appears on page 14 of the present issue.